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NIKITIN, A.I., prof., otv. red.; DOBYCHIN, B.D., prof., zam. otv. red.; ABRAMOV, K.T., dots., red.; KAZANTSEV, A.I., prof., red.; TIMOFEYEV, S.I., prof., red.; KHODOS, Kh.B., prof., red.; BOLOTOV, M.P., prof., red.; SHERSHNEV, P.A., prof., red.; VAYS, S.I., prof., red.; KLIMOV, K.A., dots., red.; SEMENOV, V.V., dots., red.; KARNAKOV, B.I., dots., red.;

[Materials on the influence of physical, chemical and biological factors on the animal and human organism]Materialy o vliianii fizicheskikh, khimicheskikh i biologicheskikh faktorov na organizm zhivotnykh i cheloveka. Irkutsk, 1961. 317 p. (MIRA 15:12)

1. Irkutsk. Gosudarstvennyy meditsinskiy institut. 2. Zaveduyushchiy kafedroy terapevticheskoy stomatologii Irkutskogo meditsinskogo instituta (for Vays). 3. Zaveduyushchiy kafedroy fakul'tetskoy khirurgii Irkutskogo meditsinskogo instituta (for Dobychin). 4. Zaveduyushchiy kafedroy infektsionnykh bolezney Irkutskogo meditsinskogo instituta (for Karnakov). 5. Zaveduyushchiy kafedroy normal'noy fiziologii Irkutskogo meditsinskogo instituta (for Nikitin).
(PHYSIOLOGY, PATHOLOGICAL)

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DOBYCHIN, B.S.

Automation of the arc furnace in electric steel melting shops.
Sbor.rats.predl.vnedr.v proizv. no.5:17-19 '60. (MIRA 14:8)

1. Kuznetskiy metallurgicheskiy kombinat.
(Electric furnaces) (Automatic control)

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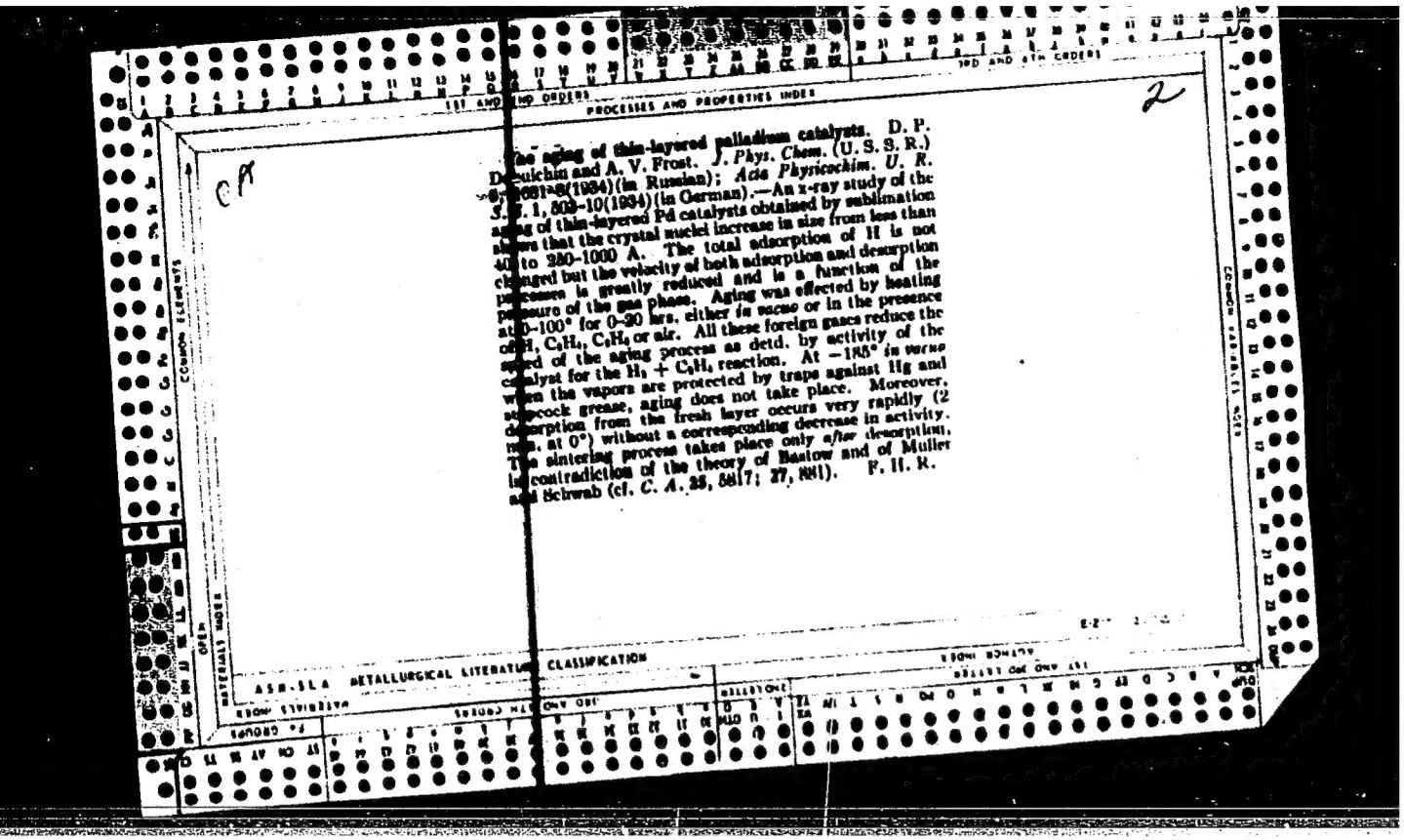

PROCESSES AND PROPERTIES INDEX

2

The aging of thin-layered palladium catalysts. D. P. Dubinin and A. V. Frost. *J. Phys. Chem.* (U. S. S. R.) 5, 681–8(1934)(in Russian); *Acta Physicochim. U. R. S. S.* 1, 803–10(1934)(in German).—An x-ray study of the aging of thin-layered Pd catalysts obtained by sublimation shows that the crystal nuclei increase in size from less than 40 to 280–1000 A. The total adsorption of H is not changed but the velocity of both adsorption and desorption processes is greatly reduced and is a function of the pressure of the gas phase. Aging was effected by heating at 0–100° for 0–30 hrs. either *in vacuo* or in the presence of H, C_2H_2, C_2H_4 or air. All these foreign gases reduce the speed of the aging process as detd. by activity of the catalyst for the $H_2 + C_2H_4$ reaction. At −185° *in vacuo* when the vapors are protected by traps against Hg and stopcock grease, aging does not take place. Moreover, desorption from the fresh layer occurs very rapidly (2 min. at 0°) without a corresponding decrease in activity. The sintering process takes place only *after* desorption, in contradiction of the theory of Hinshelwood and of Muller and Schwab (cf. *C. A.* 28, 5817; 27, 881). F. H. R.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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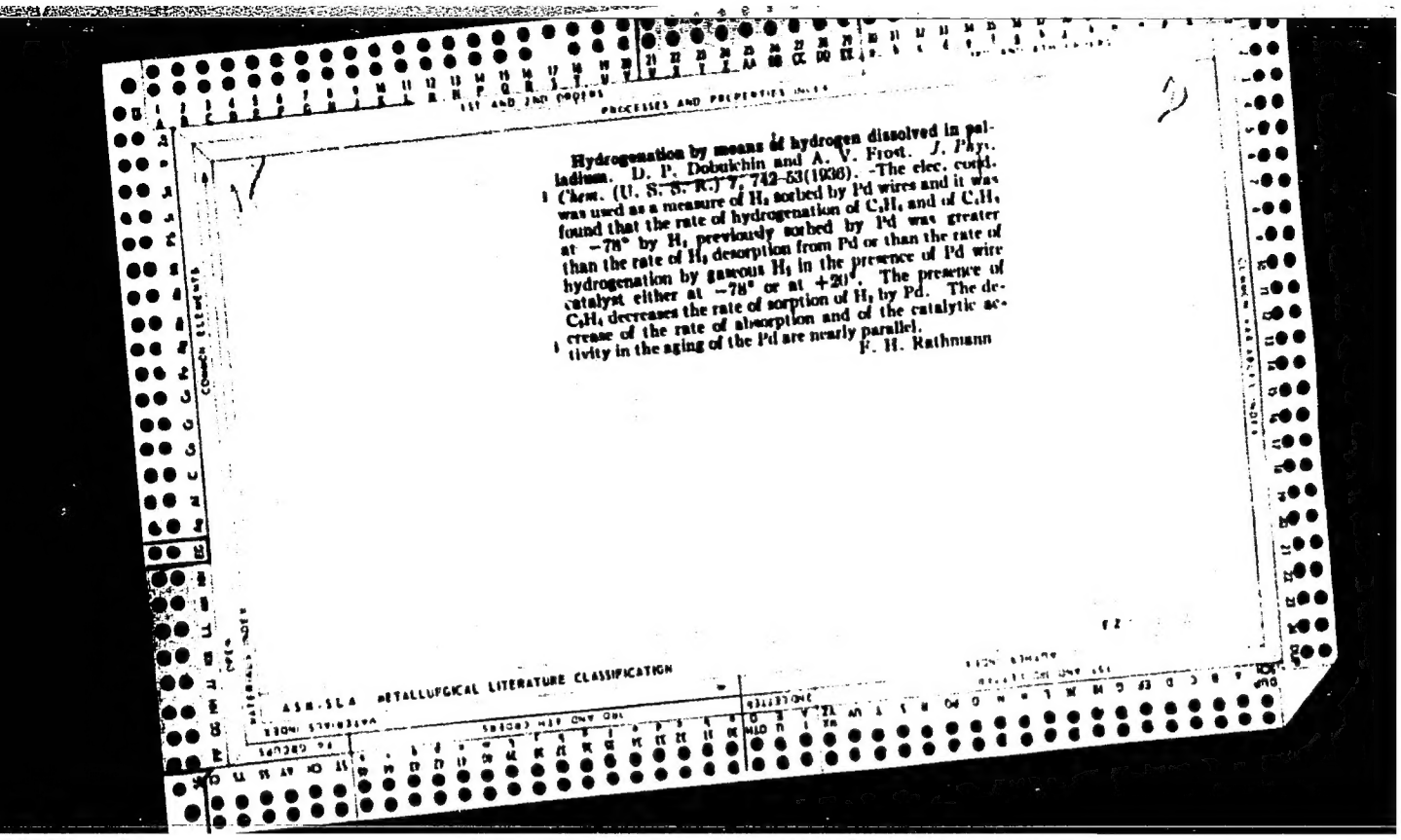

Hydrogenation by means of hydrogen dissolved in palladium. D. P. Dobuichin and A. V. Frost. *J. Phys. Chem.* (U. S. S. R.) 7, 742–53(1936). -The elec. cond. was used as a measure of H_2 sorbed by Pd wires and it was found that the rate of hydrogenation of C_2H_4 and of C_4H_6 at −78° by H_2 previously sorbed by Pd was greater than the rate of H_2 desorption from Pd or than the rate of hydrogenation by gaseous H_2 in the presence of Pd wire catalyst either at −78° or at +20°. The presence of C_2H_4 decreases the rate of sorption of H_2 by Pd. The decrease of the rate of absorption and of the catalytic activity in the aging of the Pd are nearly parallel.

F. H. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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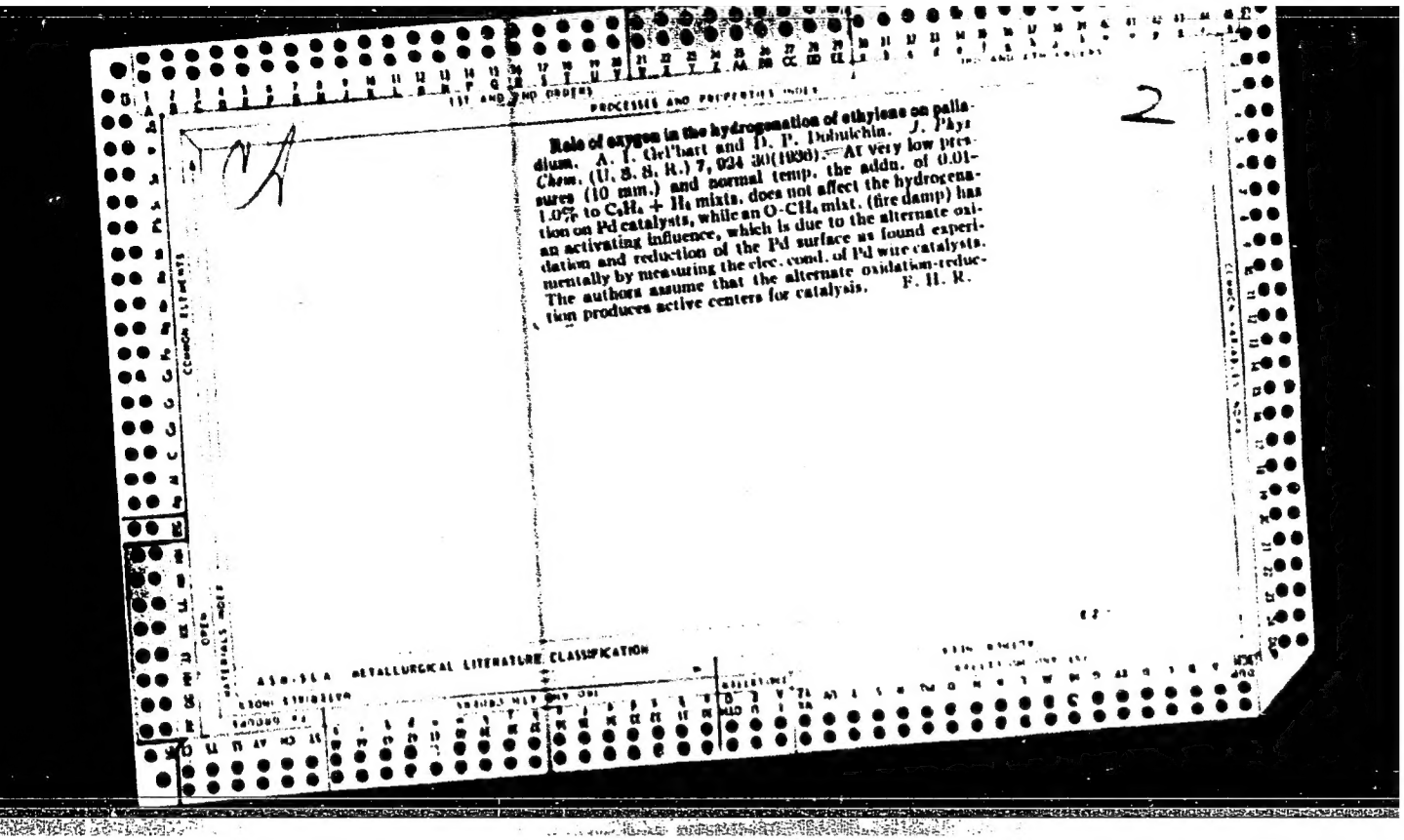

PROCESSES AND PROPERTIES INDEX

Role of oxygen in the hydrogenation of ethylene on palladium. A. I. Gel'bart and D. P. Dubuichin. *J. Phys. Chem.* (U. S. S. R.) 7, 934-30(1936).—At very low pressures (10 mm.) and normal temp. the addn. of 0.01-1.0% to $C_2H_4 + H_2$ mixts. does not affect the hydrogenation on Pd catalysts, while an O-CH_4 mixt. (fire damp) has an activating influence, which is due to the alternate oxidation and reduction of the Pd surface as found experimentally by measuring the elec. cond. of Pd wire catalysts. The authors assume that the alternate oxidation-reduction produces active centers for catalysis. F. H. R.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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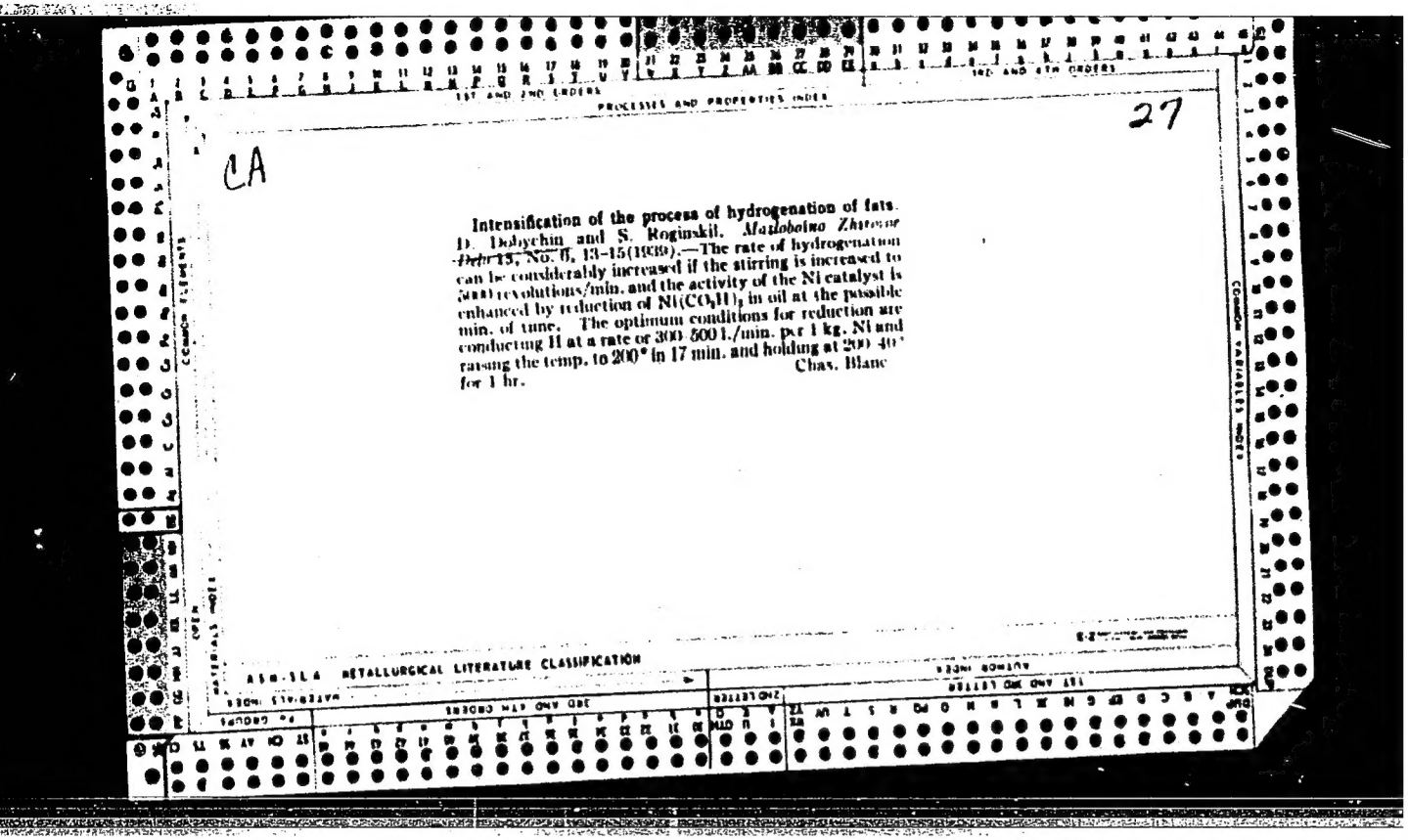

27

CA

Intensification of the process of hydrogenation of fats. D. Dobychin and S. Roginskii. *Maslobolno Zhirovoe Delo* 15, No. 6, 13–15(1939).—The rate of hydrogenation can be considerably increased if the stirring is increased to [illegible] revolutions/min. and the activity of the Ni catalyst is enhanced by reduction of $Ni(CO_3H)_2$ in oil at the possible min. of time. The optimum conditions for reduction are conducting H at a rate of 300–500 l./min. per 1 kg. Ni and raising the temp. to 200° in 17 min. and holding at 200–40° for 1 hr.

Chas. Blanc

A 1 9 - 1 1 4 METALLURGICAL LITERATURE CLASSIFICATION

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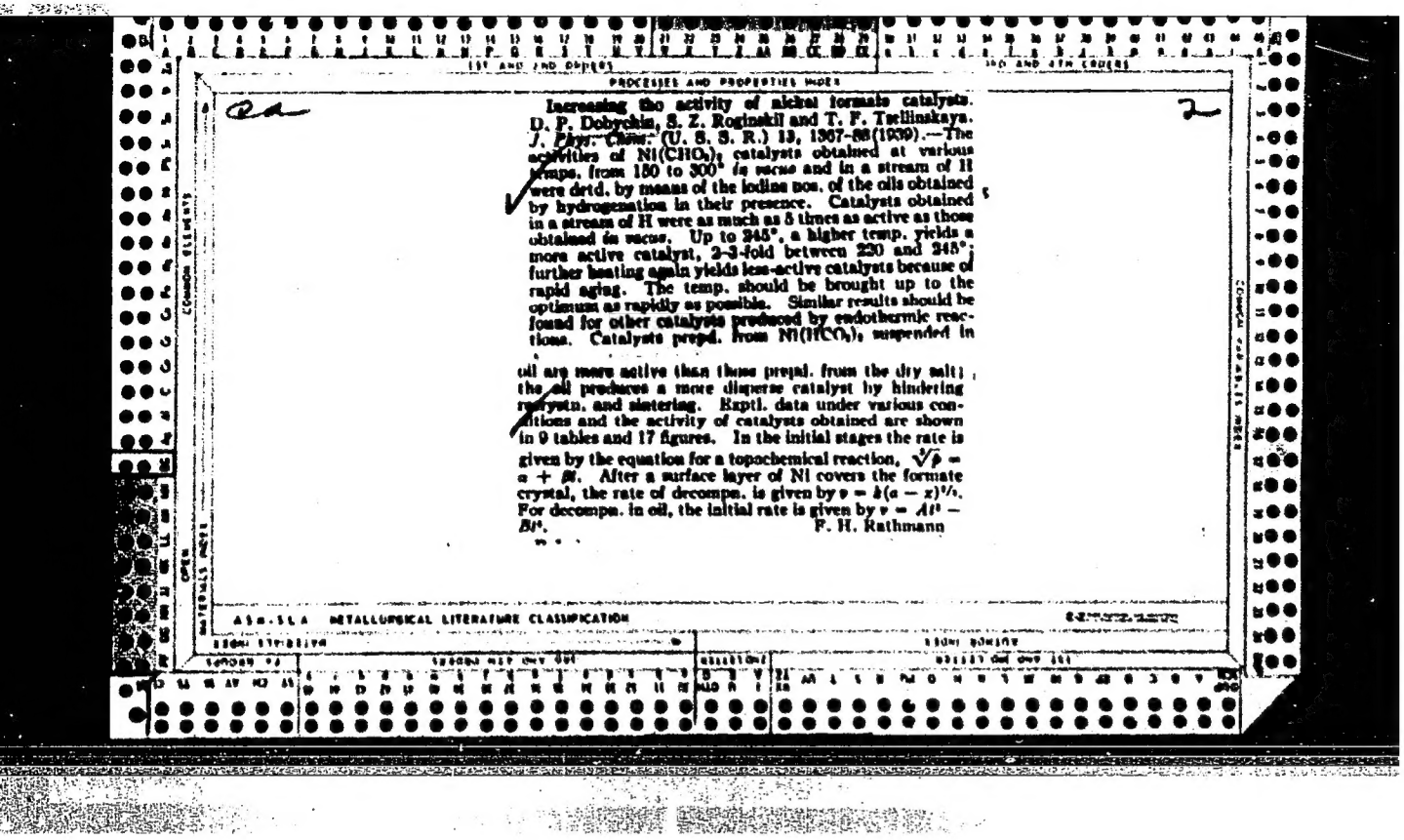

PROCESSES AND PROPERTIES INDEX

Ra

2

Increasing the activity of nickel formate catalysts. D. P. Dobychin, S. Z. Roginskii and T. F. Tsellinskaya. *J. Phys. Chem.* (U. S. S. R.) 13, 1367–88 (1939).—The activities of $Ni(CHO_2)_2$ catalysts obtained at various temps. from 150 to 300° *in vacuo* and in a stream of H were detd. by means of the iodine nos. of the oils obtained by hydrogenation in their presence. Catalysts obtained in a stream of H were as much as 5 times as active as those obtained *in vacuo*. Up to 245°, a higher temp. yields a more active catalyst, 2–3-fold between 220 and 245°; further heating again yields less-active catalysts because of rapid aging. The temp. should be brought up to the optimum as rapidly as possible. Similar results should be found for other catalysts produced by endothermic reactions. Catalysts prepd. from $Ni(HCO_2)_2$ suspended in oil are more active than those prepd. from the dry salt; the oil produces a more disperse catalyst by hindering recrystn. and sintering. Exptl. data under various conditions and the activity of catalysts obtained are shown in 9 tables and 17 figures. In the initial stages the rate is given by the equation for a topochemical reaction, $\sqrt[3]{p} = \alpha + \beta t$. After a surface layer of Ni covers the formate crystal, the rate of decompn. is given by $v = k(a - x)^{2/3}$. For decompn. in oil, the initial rate is given by $v = At^{\alpha} - Bt^{\alpha}$.

F. H. Rathmann

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

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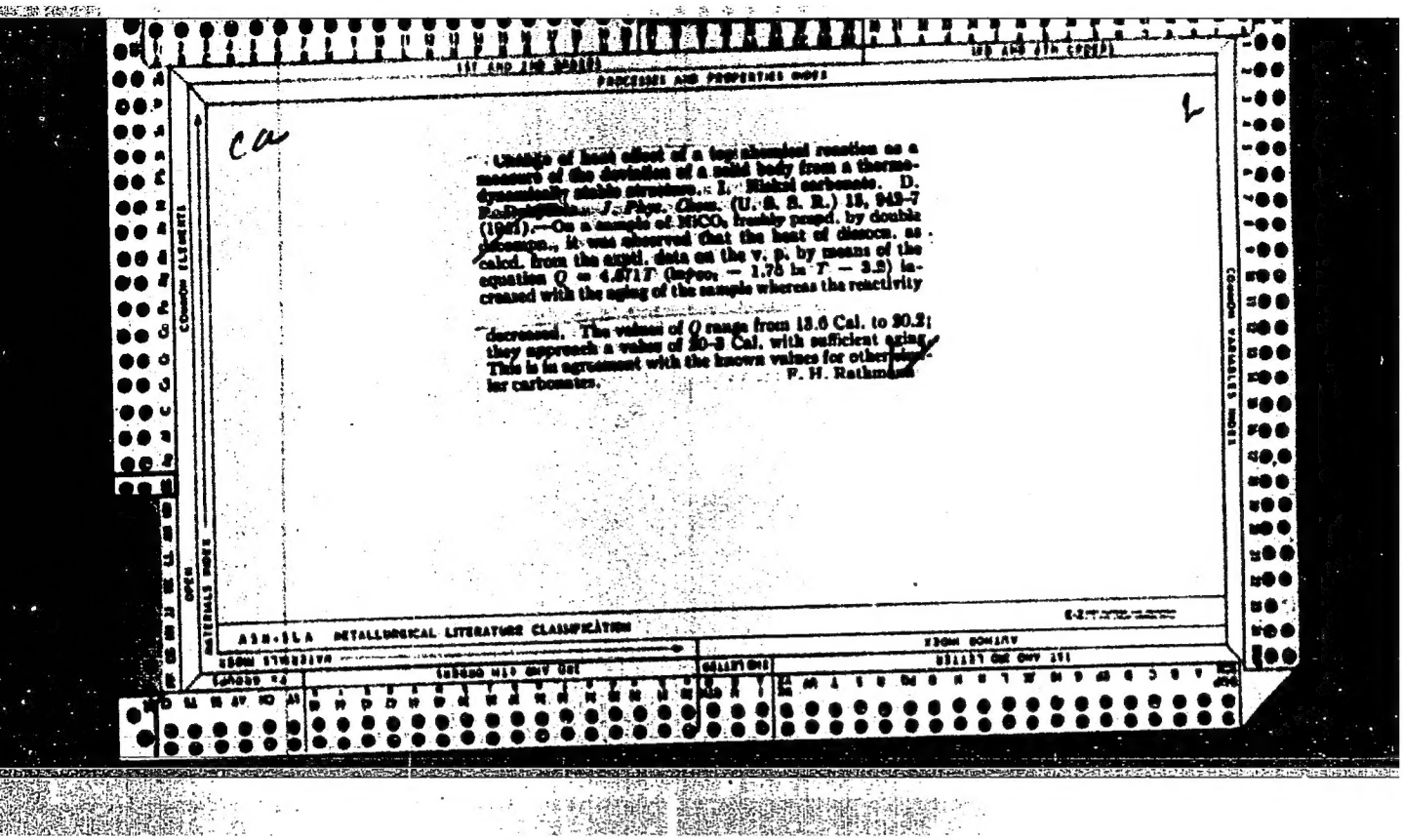

Ca

Usage of heat effect of a topochemical reaction as a measure of the deviation of a solid body from a thermodynamically stable structure. I. Nickel carbonate. D. P. Konstantinov. *J. Phys. Chem.* (U. S. S. R.) 15, 943-7 (1941).—On a sample of $NiCO_3$ freshly prepd. by double decomposn., it was observed that the heat of dissocn. as calcd. from the expti. data on the v. p. by means of the equation $Q = 4.571T\,(\log p_{CO_2} - 1.75 \ln T - 3.5)$ increased with the aging of the sample whereas the reactivity decreased. The values of Q range from 13.6 Cal. to 20.2; they approach a value of 20–3 Cal. with sufficient aging. This is in agreement with the known values for other similar carbonates.

F. H. Rathmann

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DOMTCHE , D.P.

/ Methods of measuring the excess free energy of an active solid. D. P. Dobychin. *Problemy Kinetiki i Kataliza, Akad. Nauk SSSR* 8: 165-79 1958. A review discussing various methods for measuring the excess free energy of an active solid. 58 references. Gladys N. Macy

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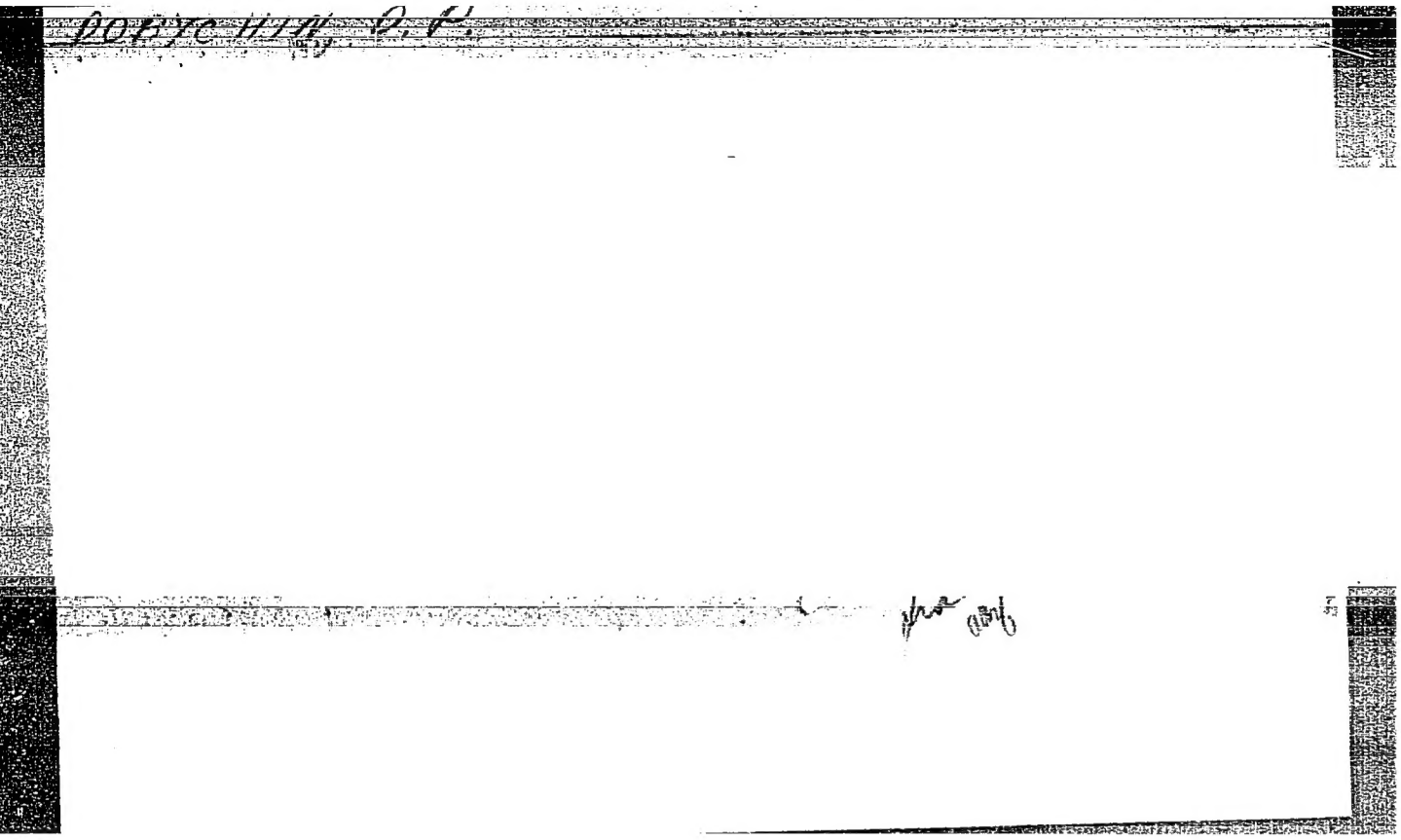

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

DOBYCHIN, D.P.

USSR/Chemical Technology. Chemical Products and Their Application -- Silicates. Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5175

Author: Dobychin, D. P.

Institution: Academy of Sciences USSR

Title: The State of Silicic Acid in Microporous Glass

Original Publication: Sb. Stroyeniye stekla, M.-L., AN SSSR, 1955, 176-180

Abstract: It is shown experimentally that in the interstices of sodium borosilicate glass no secondary silicic acid is formed. The assumption is made that leaching with acid, of sodium borosilicate glass, results in the formation of a specific dual-framework structure: a principal framework, forming large channels of hundreds of angstrom units, and of a more dispersed network, that fills these large channels, having interstices of 15-16 A in diameter.

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Dobychin, D.P.

USSR/Chemical Technology. Chemical Products and their Application. J-12
Glass. Ceramics. Building Materials.

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27613

Author : D.P. Dobychin.
Inst :
Title : Differentiation of Glass Structure at Thermal Treatment.

Orig Pub: vSb Stroyeniye stekla. M.-L., AN SSSR, 1955, 318-319.

Abstract: The author disagrees with P.P. Kobeko, who asserts that there is no differentiation into an insoluble skeleton and a lixiviating part in sodium-borosilicate glasses. Experimental data show that the dimensions of pores increase from 10 up to 80 A, if tempered sodium-borosilicate glass was fritted two weeks at 530°. The increase of pores is a proof that processes of differentiation into an insoluble skeleton and a lixiviating part take place at the thermal treatment of glass. See also RZhKhim, 1956, 75675; 1957, 5174, 5175.

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Dobychin, D.P.

Electron-microscopical study of the hydration of active alumina. D. P. Dobychin (*Dokl. Akad. Nauk. SSSR*, 1955, 105, 741—746).

It was shown by electron microscopy that finely divided γ-alumina is slowly converted to hydrargyllite by exposure to moist air at room temp. During 4 months the penetration of the hydrated layer into the particles was of the order of 0·5 μ. The process is associated with a large decrease in the specific surface of the alumina.

F. W. KIRKBRIDE.

Chem

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DOBYCHIN, D. P.

USSR/Kinetics - Combustion. Explosions. Topochemistry. Catalysis. B-9

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 18636

Author : D.P. Dobychin, T.F. Tsellinskaya.
Inst : Academy of Sciences of USSR.
Title : To The Question of Specific Catalyst Activity of Alumosilicates.

Orig Pub : Dokl. AN SSSR, 1956, 109, No 2, 351-353

Abstract : The reaction of cumene cracking in a flow system at 400° on three alumosilicate catalyst samples was investigated. These samples were of an identical chemical composition and differed by the size of the specific surface (S = 282 to 496 sq.m/g), porosity and weight per unit of volume (Δ = 0.66 to 0.83 g/cub.cm). The authors found that the catalytic activity of a unit of accessible surface of any of the catalysts under study was the same in the same reaction, and they propose to use the product of the specific surface of a sample and its weight per unit of

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

USSR/Kinetics - Combustion. Explosions. Topochemistry. Catalysis. B-9

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 18636

volume A = S Δ as a measure of the catalytic activity (A) of cracking alumosilicate catalysts of identical chemical composition.

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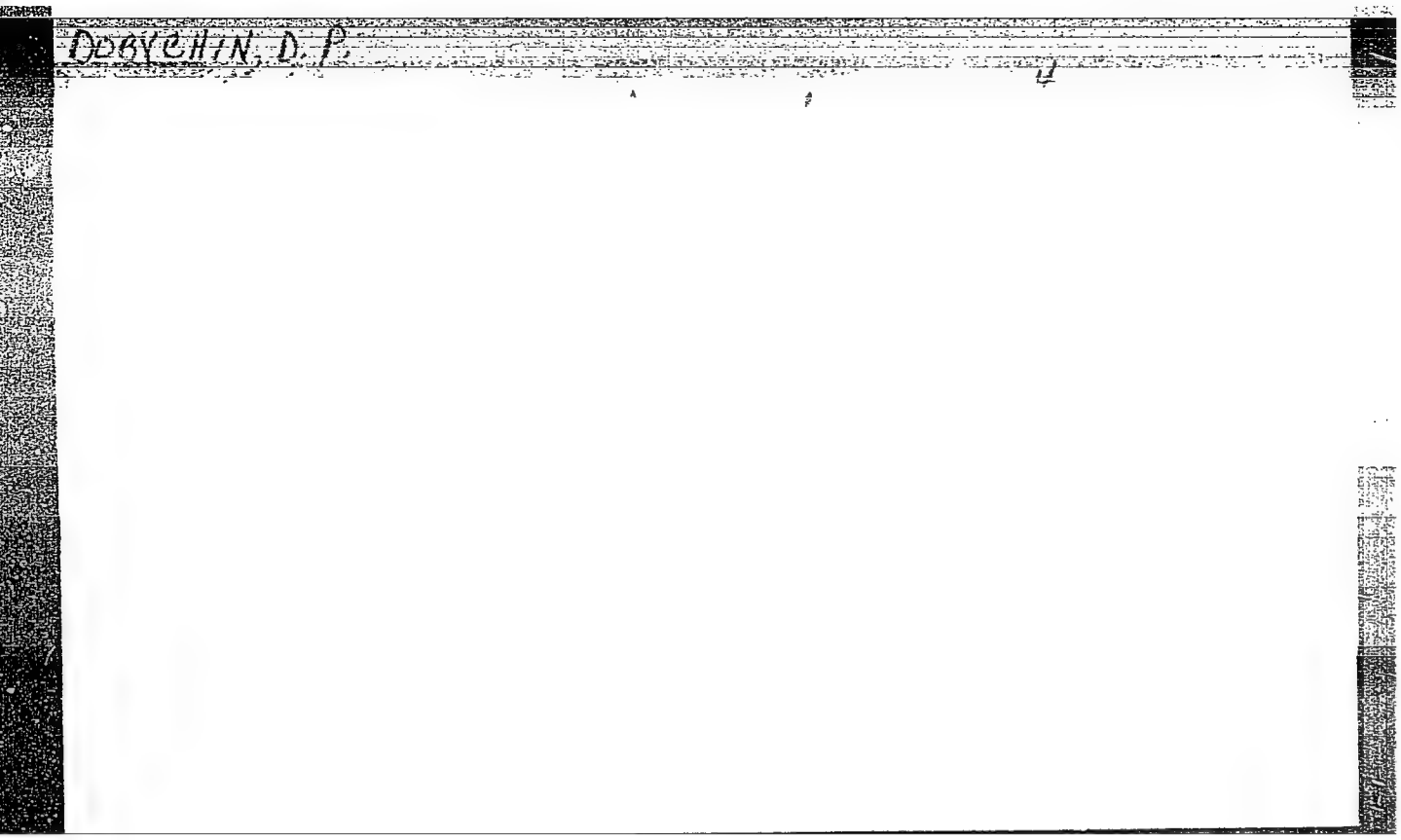

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Dobychin, D.P.

USSR/Physical Chemistry - Kinetics, Combustion, Explosions, Topochemistry, Catalysis. B-9

Abs Jour: Referat. Zhurnal Khimiya, No 3, 1958, 7245.

Author : D.P. Dobychin.
Inst : Academy of Sciences of USSR.
Title : Reaction Kinetics on Aging Catalysts.

Orig Pub: Zh. prikl. khimii, 1957, 30, No 4, 546-552.

Abstract: Particular solutions of kinetic equations for processes of the 1st order on aging catalysts are given. The following equation is derived for a motionless catalyst layer from the general equation given by O.M. Todes (Izv. AN SSSR. Otd. khim. n., 1946, 5, 483) in the case of linear activity decrease with time until some stable activity is attained: $C(x,t) = C_0 \exp\left[-(a_0 - \alpha t + \alpha\tau/2\tau\right]$, where C_0 is the initial concentration of the initial substance at the entrance into the reactor, $C(x,t)$ is the concentration of the initial substance when leaving the rector,

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

Abs Jour: Referat. Zhurnal Khimiya, No 3, 1958, 7245.

x is the length of the catalyst layer, t is time, τ is the contact duration, a_o is the initial activity, α is a factor. After the time moment $t = t_o$, i.e., after the constant activity a_c has been attained, $C(x,t) = C_o \exp(-a_c\tau)$. In the case that the activity drops exponentially with time, $C(x,t) = C_o \exp [-(a_o/\alpha) \cdot e^{-\alpha t}(e^{\alpha t}-1)]$. For a moving catalyst layer and in the case of exponential drop of its activity at work, $C_L = C_o \exp [-(\alpha_o\tau/\alpha v)(1 - e^{-\alpha v})]$, where C_L is the concentration of the initial substance when leaving the reactor, and v * [probably τ] (sic) is the time, during which the catalyst remained in the reactor.

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

20-2-37/67

AUTHOR DOBYCHIN D.P., KISELEVA N.N.

TITLE On the nature of thermal transformations in alkali borosilicate glass. (O prirode termicheskikh prevrashcheniy v shcheloochnoboro-silikatnykh steklakh.- Russian)

PERIODICAL Doklady Akademii Nauk SSSR 1957, Vol 113, Nr 2, pp 372-375 (U.S.S.R.)

ABSTRACT As known the structure of porous glasses, which are formed by treating alkali-borosilicate glass with acid solutions (1-4), depend on both the composition of the initial glass and of its heat treatment and of lixiviation conditions. With the intention of examing the problems of the structure of porous glasses and studing the composition of sodium borosilicate glass the authors investigated the kinetics of the processes in this latter glass, which here occur on the occasion of heat treatment. The sorption method of the structural investigation of porous glass was applied by means of a quartz scale. Water served as sorption material. The authors mentioned already before that after a long heat treatment at a temperature of 530° the radius of the pores in the glass Na-7/23 increases by lixiviation with increasing duration of this heat treatment. On the other hand already after a heat treatment of half an hour or longer at a

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temperature of 650° the values of the radius and the space of the pores remain steady, independent of the lixiviation conditions in acids. This demonstrates that the fine-pored siliceous earth network extracted by alkalis from high-temperatured glass (treated at 780°) is no "secondary silicic acid", which might have coagulated in the pores during the extraction in acid. In the experiment the same glass Na-7/23 from the same fused mass but of two different initial conditions was heat-treated: A. was hardened down from 850° and B. after a rough glowing down from high temperatures and a following slow cobling. Lixiviation was carried out in a HCl-solution of 3 n (15 cm³ per 1 g glass; powder, fraction 100 - 150 μ) at 50°. The results show modification curves (ill. 1 and 2) of the pore-radius and -space according to the duration of the heat treatment at different temperatures for both kinds of glass. From the shape of the curve it becomes manifest that there are at least two structural processes proceeding in this glass: 1. a faster one which becomes evident in a decrease of the radius and the entire space of the pores and 2. a slower one, which allows these two values to rise to a certain limit. The velocity of both processes highly increases with rising temperatures. As the first

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process does not occur in samples of the A-type, the authors presume that it is connected with the destruction of the regions of chemical heterogeneity till then existing, furthermore with the rearrangement of the spatial network of glass and with the reorientation of chemical bonds. The second, slower process, however, seems to be connected with the diffuse transmission of the substance into glass. At about 585° the authors discovered a critical value (or a small critical region). Above the latter a short heat treatment (half an hour at 650°) was sufficient to make the radius value of the pores of the glass lixiviated by acid steady (and not high). The authors believe that at this temperature in the boron-sodium-regions an uninterrupted acid-resistant siliceous earth skeleton begins to be composed. The pore-radius above 585° becomes smaller with rising temperatures of the heat treatment. At temperatures under 730° opalescence rises with increasing duration of heat-treatment without a noticeable jerk in the region of 585°. The increase of the pore-radius in

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connection with relatively increasing total volume of the pores denotes that the total number of pores and so the regions of the chemical heterogeneity falls during the heat-treatment. The equation of O.M. Todes

$$\frac{1}{N} = \frac{1}{N_0} + k \cdot t$$

satisfactorily describes the kinetics of the integration process of the regions, which are lixiviated by acid, of chemical heterogeneity (ill. 3). The decrease of the number of particles when their average size increase gives evidence of processes of an isothermal distillation and recondensation. Explaining the nature and the kinetics of the processes which occur during the heat treatment of sodium-borosilicate glass warrants the controllability of the glass production with a required structure, among others of bidisperse and wide-porous glass (radius of magnitude of some 100.000 Å).
(3 illustrations, 2 schedules, 13 citations from publications)

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On the nature of thermal transformations in alkali borosilicate glass.

20-2-37/67

ASSOCIATION: not given.
PRESENTED BY: A.N. TERENIN, Member of the Academy.
SUBMITTED: 10.5. 1956
AVAILABLE: Library of Congress.

CARD 5/5

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

DOBYCHIN, D. P.

76-1-4/32

AUTHORS: Dobychin, D. P., Kiseleva, N. N.

TITLE: The Effect of the Thermal Treatment of Sodium Borosilicate Glasses on the Porous Structure of Their Residues After Acid Etching (O vliyanii termicheskoy obrabotki natrovoborosilikatnykh stekol na poristuyu strukturu produktov ikh vyshchelachivaniya v kislote)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1958, Vol. 32, Nr 1, pp. 27-34 (USSR)

ABSTRACT: In reference 17 the first mentioned author showed that the pore-radii of a porous glass which was obtained by means of acid etching of the Na-7/23 glass (which was subjected to a continuous thermal treatment at 530°C) do not reach any constant value but that they further increase with the increase of the duration of the thermal treatment of the original glass. Na-7/23 denotes a composition of 7 mol % Na_2O, 23 mol % B_2O_3 and 70 mol % SiO_2. In reference 18 the two authors showed that the thermal treatment of Na-7/23 at temperatures of up to 580° caused at least two structural processes: 1) One quicker, which becomes manifest in a decrease of the radius as well as of the total volume of

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The Effect of the Thermal Treatment of Sodium Borosilicate Glasses on the Porous Structure of Their Residues After Acid Etching

the pores. 2) One slower which causes an uninterrupted increase of the pore-radius as well as an increase of the total volume of the pores unto a certain value dependent on the temperature. In the case of the 1st process the authors assume that it is connected with the destruction of the earlier present (if there was a preliminary heat treatment) domain of chemical heterogeneity with the re-arrangement of the glass-lattice as well as with the reorientation of chemical compounds causing only small lattice element displacements. The 2nd slower process, however, is connected with the transfer of the substance by means of a diffusion process of the great boronsodium domains at the expense of the disappearance of small ranges corresponding to the kinetic recondensation law. Contrary to reference 2o the authors show that the structure of porous glass is essentially determined by the division into chemical heterogeneity domains of the initial glass. At about 505°C a critical value for the temperature was found. It divides the heat treatment ranges of the glass according to the properties of the porous glass obtained from it. At temperatures of above 505°C a short heat treatment (at 650°C,

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- half an hour) is sufficient for the pore radius (of the porous glass obtained by means of acid etching) to acquire a constant value (which does not change with longer heat treatment but decreases with the rise of the temperature of the heat treatment of the initial glass) (references 17, 18). At 590°C a porous glass is obtained with a pore radius of from 18 - 20 A and at 850°C one of about 8 A. The independence of the structure of porous glasses, which were obtained from glass samples of "high temperature", from the acid concentration as well as from the temperature of acid etching shows that the coagulation of silicic acid in the pores does practically not take place in this case. But it takes place in the acid etching of glass samples which were heat treated at 585°C. Based on the results obtained here the increase of the measurements of chemical heterogeneity domains can be regarded as a recondensation process which is the same for all temperatures below the upper opalescence limit (at about 725°C). From this point of view the difference between the porous structure of the products of the acid etching of glasses which have been heat treated

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below and above 585°C is only of subordinate character (as it is connected with the inner structure of the boron-sodium domains). The investigation of the kinetics as well as of the nature of the processes taking place in N-7/23 glass and heat treatment of this substance makes it possible to obtain porous glasses with desired structure, mono- as well as bidisperse glasses. A continuous heat treatment is very effective which makes use of the structures developed at above 585°C. A heat treatment of such a glass at below 585°C destroys quickly, during the first process, the fine silica lattice within the boron-sodium domains, but these do not disappear completely. After this the domains of chemical heterogeneity develop which correspond to this low temperature. As a result of the acid etching of such a glass a porous glass with a bidisperse structure is obtained. There are 7 figures, 3 tables, and 23 references, 19 of which are Slavic.

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

5(4), 7(6)

AUTHORS: Dobychin, D. P., Pogodayev, A. K. (Leningrad) SOV/76-32-11-27/32

TITLE: A Sensitive Adsorption Method and Its Use for Investigating the Porous Structure of Thin Films on Optical Surfaces (Chuvstvitel'naya adsorbtsionnaya metodika i yeye primeneniye dlya issledovaniya poristoy struktury tonkikh plenok na opticheskikh poverkhnostyakh)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 11, pp 2637-2640 (USSR)

ABSTRACT: As only small amounts of the sorbent film were present in the investigations mentioned in the title it was necessary to take into account the parasitic effects, as for instance, the polymolecular adsorption on the vessel walls and on the external surface of the samples. A method was devised where the necessary sensitivity was obtained by a decrease in volume of the adsorption system (Fig 1). The determinations of the general pore volume of 2.10^{-4} cm^3 can be carried out with an accuracy of 1%, which in the case of a porosity of about 20% corresponds to a sorbent film of a minimum of 1 mm^3. One part of the apparatus was produced from chemically resistant glass Nr 23 or Nr

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A Sensitive Adsorption Method and Its Use for Investigating the Porous Structure of Thin Films on Optical Surfaces

29. The test disks of the glass to be investigated (diameter 20 mm, thickness 0.3-0.5 mm) were polished and pickled prior to their investigation, and then the 1000±50 Å thick film was applied. Surfaces of 50-100 cm^2 can be measured using 1 mg of the adsorbent. The experimentally obtained adsorption isothermal lines of steam on films on glass K-8 (Fig 2) and TK-1 (Fig 3) represent a summation of the adsorption in the pores of the film as well as on the vessel surface and the external surface of the sample. The method of calculating the actual adsorption isotherm in the pores is mentioned. The calculation results obtained show (Table 2) that the condensation of water between the particles, on quartz sorbents up to p/p_s = 0.97 - 0.98 (at particle sizes of 5μ and more) may be neglected. With pores that are so small that no hysteresis loops occur on the adsorption isothermal lines the usual representation of the adsorption surface cannot be used. There are 4 figures, 3 tables, and 9 references, 7 of which are Soviet.

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

20-119-5-35/59

AUTHOR: Dobychin, D. P.

TITLE: The Conduction of a Topochemical Diffusion Process at a Constant Rate (Provedeniye topokhimicheskogo diffuzionnogo protsessa s postoyannoy skorost'yu)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 119, Nr 5, pp. 967-970 (USSR)

ABSTRACT: The chemical destruction of solids in which a layer of solid products is formed on the surface of these bodies is partly slowed down by the diffusion of the reacting substances through this layer in the reaction zone. To these processes belong the oxidation of various metals, the combustion of substances with strong ash formation, the burning out of coke from aluminum-silicate catalysts in cracking, the leaching of alloys, the production of porous glass on the action of acids on sodiumborosilicate glass etc. In those cases where the determining stage of the process is the diffusion in the porous layer, the concentrations of the reacting substance in the volume (in the solution, in the gas) and on the outer surface of the porous layer can balance and then they do

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not differ from each other. First the denotations used are explained. In a process which had become steady the quantity of the diffusion current of the reacting substance through the porous layer to the reaction zone is equal to the reaction velocity. A corresponding equation is put down. The solution by L. A. Vulis (Ref. 1) for the case of a constant concentration of the reacting substance in the volume of the gaseous or liquid phase can be replaced by an approximation solution taking into account the limiting conditions. In the case of such a constant concentration $c_{o,t}$ usually a quasisteady process takes place. The gradient of the concentration $\partial c/\partial x$ is then practically constant at any given moment along the whole layer. The velocity of the process is variable. Because of the great difficulties in the case of the exact solution the author uses an approximative solution. The linearity of the increase of concentration of the reacting substance in the volume during the whole process is taken as condition for the constancy of the velocity of the process as well as of the effective concentration

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in the reaction zone. The velocity of the production of the porous layer increases proportionally to the square root of the increase velocity of the concentration of the reacting substance in the volume. For the experimental checking of the correctness of the results found the production of porous glass by leaching of sodiumborosilicate glass in an acid is suited. These experiments were carried out with polished samples at room temperature and supplied results sufficiently well coinciding with theory. The chickness of the porous layer actually increases with constant velocity during the first hours. Then the velocity of the process decreases as was expected. The author thanks O. M. Todes for valuable suggestions and remarks in the discussion of the manuscript.
There are 1 figure, 1 table and 4 references, 3 of which are Soviet.

PRESENTED: November 23, 1957, by A. N. Terenin, Member, Academy of Sciences, USSR.

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The Conduction of a Topochemical Diffusion Process at a Constant Rate 20-119-5-35/59

SUBMITTED: November 14, 1957

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

ZAKHAR'YEVSKIY, Mstislav Sergeyevich; NIKOL'SKIY, B.P., prof., otv.red.; DOBYCHIN, D.P., kand.khim.nauk, otv.red.; SHCHEMELEVA, Ye.V., red.; ZHUKOVA, Ye.G., tekhn.red.

[Kinetics of chemical reactions] Kinetika khimicheskikh reaktsii. Leningrad, Izd-vo Leningr.univ., 1959. 165 p. (MIRA 12:12)

1. Chlen-korrespondent AN SSSR (for Nikol'skiy).
(Chemical reaction, Rate of)

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5(2)

SOV/80-32-3-4/43

AUTHORS: Dobychin, D.P., Tsellinskaya, T.F.

TITLE: The Effect of Thermal Aging on the Porous Structure and the Catalytic Activity of Synthetic Aluminum Silicates (Vliyaniye termicheskogo stareniya na poristuyu strukturu i kataliticheskuyu aktivnost' sinteticheskikh alyumosilikatov)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol XXXII, Nr 3, pp 486-494 (USSR)

ABSTRACT: The aging process of aluminum silicates is characterized by a decrease of the pores with small radius. The aging of highly-dispersed porous bodies may be regarded as a process of condensation in the two-dimensional phase. The energy of the thermal aging process increases with the surface energy of the dispersion. The loss of the catalytic activity affects the gasoline yield more than the depth of cracking, i.e., the difference between the used raw material and the unreacted rest. If gas oil is cracked on aluminum silicate catalysts, "catalytic ultraporosity" is observed which consists in the fact that the large molecules cannot penetrate the small pores. The bromine numbers of the gasoline fractions increase with

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The Effect of Thermal Aging on the Porous Structure and the Catalytic Activity of Synthetic Aluminum Silicates

the aging of the catalyst. The redistribution of hydrogen is especially reduced by aging. This points to the fact that there are two acid centers on the surface of the aluminum silicates [Ref 15].

There are 9 graphs, 4 tables and 16 references, 12 of which are Soviet, 2 English, 1 American and 1 French.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov, Leningrad (All-Union Scientific Research Institute of Petroleum-Chemical Processes, Leningrad)

SUBMITTED: July 11, 1958

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75688
SOV/80-32-10-37/51

AUTHOR: Dobychin, D. P.

TITLE: Brief Communications. Diffusion of Water Vapor and Flow of Air in Porous Glass

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 10, pp 2336-2339 (USSR)

ABSTRACT: The gas permeability and effective diffusion coefficients of water vapor in sodium boro-silicate glasses with wide pores were compared with data on the porous structure of the glasses. The radius of the pores was determined by the velocity of air flow through the investigated samples of glass in Knudsen flow according to Deryagin (B. V. Deryagin, Tr. Ins. fiz. khim. AN SSSR, 1, 150 (1950). The air flow velocity through the porous glass plate was measured by the pressure increase (or decrease) in a closed calibrated volume (see Fig. 1). The results of the experiments are shown in the table (see table attached). It was shown

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that the gas permeability is proportional to the radius of pores. The effective diffusion coefficient is a linear function of the radius of pores. The obtained value of the effective diffusion coefficient for glasses with fine pores (0.008 cm^2/sec) and for the glasses with wide pores (average 0.03 cm^2/sec) are in reasonable agreement with the value of diffusion coefficient of water vapor in air $D_{16^\circ} = 0.282$ cm^2/sec. There are 3 figures; 1 table; and 9 references, 1 British, 7 Soviet, and 1 U.S. The 2 English language references are: C. M. Tu, H. Davis, H. C. Hottel, Ind. Eng. Ch., 26, 749 (1934); W. M. Jones, Trans. Faraday Soc., 47, 381 (1951).

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Brief Communications. Diffusion of Water Vapor and Flow of Air in Porous Glass

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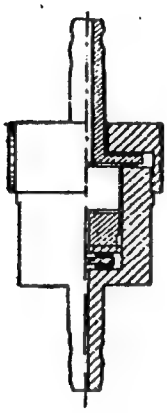

Fig. 1. A sketch of the fixture with double sealing for measuring the velocity of air flow through a porous glass plate.

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Brief Communications. Diffusion of Water Vapor and Flow of Air in Porous Glass

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Test Nr	Specific porosity δ (in cm/cm^3)	Gas permeability K_{gas} $\frac{cm^3 \times mm}{cm^2 \times min. \times atm}$	Radius of pores (in A), method of gas flow	Effective diffusion coefficient of water vapor D (in cm^2/sec)
1	0.386	26.6	495	—
2	0.552	98.5	1300	—
3	0.641	86.1	1110	—
4	0.820	210	2000	—
5	0.432	24	380	0.021
6	0.429	40.8	575	0.023
7	0.514	59.4	820	0.042
8	0.391	64.9	1300	0.044
9	0.284	0.15—0.3	30—40	0.0083

SUBMITTED: June 11, 1958

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5(4)

AUTHORS: Dobychin, D. P., Tsellinskaya, T. F. SOV/76-33-1-34/45

TITLE: An Accelerated Method of the Adsorption Determination of the Surface Area of Sorbents (Uskorennyy metod adsorbtsionnogo opredeleniya velichiny poverkhnosti sorbentov)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 1, pp 204-207 (USSR)

ABSTRACT: The method by Brunauer, Emmett and Teller (Ref 1), based on the determination of the adsorption isotherms of gases and vapors on porous and non-porous adsorbents, is complicated and tedious. For the method under discussion, however, only the determination of a single point on the isotherm with the value of the relative vapor pressure of the sorptive p/p_s is necessary. Measurements were carried out by the statistical method on an usual arrangement at 16.5°C. The measurements of a considerable number of benzene adsorption isotherms of various samples of active aluminum oxide and alumosilicates showed that the molecular layer of the samples (with different specific surfaces) is filled at practically the same value of the relative vapor pressure of benzene. This value is

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$(p/p_s)_{a_m} \cong 0.21_4$ for Al_2O_3 and alumosilica gel(Table 1).

The theoretical basis of the determination method described is founded on the equation BET which is used for calculating the specific surface. Experimental data, obtained from investigations during the years 1947-1950, are given. The paper published by M. I. Temkin (Ref 2) which also describes an accelerated method of determining the specific surface came out when the paper under discussion was already in the press. In conclusion, gratitude is expressed to Yu. A. Bitepazh, E. M. Kaganova, and B. L. Moldavskiy for the samples provided. There are 1 figure, 2 tables, and 2 Soviet references.

ASSOCIATION: Institut po pererabotke nefti i polucheniyu iskusstvennogo zhidkogo topliva, Leningrad (Institute of Petroleum Processing and the Production of Synthetic Liquid Fuels, Leningrad)

SUBMITTED: July 10, 1957

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5(4) SOV/76-33-4-19/32

AUTHORS: Dobychin, D. P., Klibanova, Ts. M.

TITLE: Model Study on the Regeneration of Alumosilicate Catalysts for Cracking (Model'noye izucheniye regeneratsii alyumosilikatnykh katalizatorov krekinga). 1) Methods of Investigation and the Distribution of Coke in the Particle of a Spherical Alumosilicate Catalyst (1. Metodika issledovaniya i raspredeleniye koksa v chastitse sharikovogo alyumosilikatnogo katalizatora)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 4, pp 869-876 (USSR)

ABSTRACT: In 1947 irrespective of other investigations the coke combustion kinetics with alumosilicate cracking catalysts under model conditions was started which was completed in 1949. The experimental results which were obtained during this period (Refs 10-12) under similar conditions are discussed in the explanations of the combustion kinetics. The present investigations were carried out at spherical alumosilicate catalysts (AC) (Refs 3, 13) because the round shape and the transparency of the particles favor the investigation of the combustion process. The principle of the methods of investigation is

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Model Study on the Regeneration of Alumosilicate Catalysts for Cracking. 1. Methods of Investigation and the Distribution of Coke in the Particle of a Spherical Alumosilicate Catalyst

the photographing of the shifting of the coke combustion boundary in the sphere and a simultaneous determination of the amount of burnt coke by a continuous weighing of the sphere on a torsion balance (Fig 1). The weighing is done by means of two microscopes of the type MIR-1 while the temperature was measured by means of a potentiometer PP-1. The picture of combustion was taken by a camera "Sport" (with a telephoto lens "FED" and an ancillary lens "FED-2"). The diameter of the coked zone of the sphere was then measured by a measuring microscope MIR-12 (Fig 1, some pictures of different stages of combustion). The experiments were carried out by means of a finely porous ball catalyst put at the disposal by E. M. Kaganova and B. L. Moldavskiy the coke accumulation was carried out in a test apparatus (Fig 3) using the kerosene-gasoline fraction of an Artem-Malgobek petroleum. A comparison of the kinetic curves of the intensity of the coked spherical zones (Figs 5, 6) shows that the major part of the separated coke, approximately 60%, lies on the surface and that after a layer thickness of 0.2 mm (Figs 8, 9) is attained

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Model Study on the Regeneration of Alumosilicate Catalysts for Cracking. 1. Methods of Investigation and the Distribution of Coke in the Particle of a Spherical Alumosilicate Catalyst

a sharp decline in the concentration of the coke layer accumulated in cracking may be observed. The observations made led to the assumption that the process of regeneration of the catalyst may be divided into two stages- the combustion of the external coke layer and the combustion of coke which had accumulated in the pores, with the latter taking place in the inner range of diffusion (Fig 11). It was found experimentally (Table) that within the (AC) sphere the temperature during the regeneration process is practically equal to that of the passing gas flow. There are 11 figures, 1 table, and 15 references, 10 of which are Soviet.

ASSOCIATION: Leningradskiy nauchno-issledovatel'skiy institut po pererabotke nefti i polucheniyu iskusstvennogo zhidkogo topliva (Leningrad Scientific Research Institute for Petroleum Processing and the Production of Synthetic Liquid Fuels)

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5 (4)

AUTHORS: Dobychin, D. P., Klibanova, Ts. M. (Leningrad)

SOV/76-33-5-10/33

TITLE: A Model Investigation of the Regeneration of Aluminum Silicate Catalysts of Cracking (Model'noye izucheniye regeneratsii alyumosilikatnykh katalizatorov krekinga). 2. Combustion of the Coke Deposited on the Surface and General Kinetic Laws of the Process (2. Vygoraniye poverkhnostnogo koksa i obshchiye kineticheskiye zakonomernosti protsessa)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 5, pp 1023-1029 (USSR)

ABSTRACT: A previous investigation by the author showed (Ref 1) that more than half of the coke deposit is on the catalyst surface and the remainder is evenly distributed inside the catalyst. Therefore, two processes can be distinguished in combustion, one taking place on the surface, the other inside. This paper deals with the first process. At first, the dependence of combustion on the speed of the gas current is measured (Fig 1). Since the experiments were carried out under almost laminar flowing conditions, the combustion rate could not depend on the speed of the gas current. By applying the V. V. Pomerantsev

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method it was determined that combustion takes place in the outer kinetic range only (Fig 1). Figure 3 shows the dependence of the combustion rate on the oxygen concentration. Direct proportionality occurs. The influence of temperature on the combustion rate is shown in figures 4, 5, and 6. Figure 7 shows that at temperatures of about 560° and below, combustion does no longer take place on the surface only and, therefore, the rate becomes dependent on the thickness of the coke layer. The investigation of the effect of carbonic acid on the combustion rate (Fig 8) shows that the effect can be disregarded up to 600° and a content of 14 volume% of CO_2. The kinetics of the combustion of the surface layer can be expressed by the equation $w = A[O_2]e^{-E/RT} = 0.22[O_2]e^{-13000/RT}$ $(g/cm^2 \cdot sec)$. w = combustion rate with regard to 1 cm^2 of the surface, $[O_2]$ = the relative oxygen content with respect to the oxygen concentration of air under equal conditions and atmospheric pressure. There are 8 figures, 2 tables, and 15 references,

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A Model Investigation of the Regeneration of Aluminum Silicate Catalysts of Cracking. 2. Combustion of the Coke Deposited on the Surface and General Kinetic Laws of the Process

SOV/76-33-5-10/33

11 of which are Soviet.

ASSOCIATION: Institut po pererabotke nefti i polucheniyu iskustvennogo zhidkogo topliva Leningrad (Institute of Petroleum Refining and Production of Synthetic Liquid Fuels, Leningrad)

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AUTHORS: Dobychin, D.P., Tsellinskaya, T.F. SOV/76-33-11-21/47

TITLE: On the Problem of Constancy of the Catalytic Activity of the Surface Unit of Solid Catalysts

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 11, pp 2498-2503 (USSR)

ABSTRACT: By investigating the catalytic activity concerning the surface unit of catalysts G.K. Boreskov found in 1953 that the fluctuations of the activity are relatively small and that the latter is determined by the structure of the accessible catalyst surface (Ref 1). In this connection the dependence of the catalytic activity of the γ-aluminum oxide and of the aluminum silicate catalysts on the degree of the thermal aging (sintering) was studied. The dehydration of isopropanol in the adsorption layer on the active aluminum oxide (Ref 2) was investigated. Annealing for 2 hours at 550, 700, and 900°C caused a decrease in the specific surface of the catalyst from 244 to 200, or 100 m^2/g, respectively, at which no considerable change was observed in the number of catalytically active spots per 1 cm^2 (0.13-0.24% of the total surface) (Table 1, Ref 2). The catalytic activity decreased 6

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On the Problem of Constancy of the Catalytic Activity of the Surface Unit of Solid Catalysts

times and the specific activity 3 times. It is determined that the γ-aluminum oxide surface is heterogeneous and that only a small part (up to 0.25%) is catalytically active. The catalytic properties of the surface unit of γ-aluminum oxide may change in dependence on the preparation and the application of the catalyst. The differences in the catalytic activity of the surface unit are small and do not change the order of magnitude of the catalytic activity. Papers of A.V.Agafonov and M.A.Kaliko (Ref 3) and those of the authors (Ref 4) showed that the cracking capacity of the accessible catalyst surface unit of aluminum silicate catalysts of the same composition and different porous structure is identical for cumene (Table 1, Ref 4). As the active aluminum silicates, apart from the hydrocarbon cleavage, also catalyze the redistribution of the hydrogen and other processes, the cracking of cumene and gasoil was thoroughly studied on different aluminum silicate catalysts (fine-porous granular aluminum silica gel was put at disposal by E.M. Kaganova and B.L.Moldavskiy), and the porous structure and catalytic activity was tested on samples de-activated to different degrees; the results are

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listed (Table). In contradiction to the results of K.V. Topchiyeva (Ref 7) the presence of at least two types of active centers on the catalyst-surface is assumed. One of these types, which causes the cracking, does not change during the sintering and seems to be of the ionic (protonic) type of active centers. The other type, which catalyzes the redistribution of the hydrogen (and possibly also other processes) changes its properties (and the number per surface unit) at sintering and belongs to the type of electronic (semiconductor) active centers. Therefore the assumption of Boreskov is only partially correct. There are 4 figures, 1 table, and 9 references, 8 of which are Soviet and 1 French.

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DOBYCHIN, D. P.

PHASE I BOOK EXPLOITATION SOV/5055

Vsesoyuznoye soveshchaniye po steklobrazovaniyu sostoyaniyu. 3d, Leningrad, 1959.

Steklobrazovaniye sostoyaniya; trudy Tret'yego vsesoyuznogo soveshchaniya Leningrad, 16-20 noyabrya 1959 (Vitreous State; Transactions of the Third All-Union Conference on the Vitreous State, Held in Leningrad November 16-20, 1959) Moscow, Izd-vo AN SSSR, 1960. 334 p. Errata slip inserted. 3,200 copies printed. (Series: Its: Trudy)

Sponsoring Agencies: Institut khimii silikatov Akademii nauk SSSR. Vsesoyuznoye khimicheskoye obshchestvo imeni D.I. Mendeleyeva and Gosudarstvennyy orden Lenina opticheskiy institut imeni S.I. Vavilova.

Editorial Board: A.I. Avgustinik, V.P. Barzakovskiy, M.A. Bezborodov, O.K. Botvinkin, V.V.Vargin, A.G. Vlasov, K.S. Yevstropyev, A.A. Lebedev, M.A. Matveyev, V.S. Molchanov, N.L. Nyuller, Ye.A. Poray-Koshits, Chairman, M.A. Toropov, V.A. Florinskaya, A.K. Yakhkind; Ed. of Publishing House: I.V. Suvorov; Tech. Ed.: V.V. Bocharov.

PURPOSE: This book is intended for researchers in the science and technology of glasses.

COVERAGE: The book contains the reports and discussions of the Third All-Union Conference on the Vitreous State, held in Leningrad on November 16-19, 1959. They deal with the methods and results of studying the structure of glasses, the relation between the structure and properties of glasses, the nature of the chemical bond and glass structure, and the crystallochemistry of glass. Fused silica, mechanism of vitrification, optical properties and glass structure, and the electrical properties of glasses are also discussed. A number of the reports deal with the dependence of glass properties on composition, the tinting of glasses and radiation effects, and mechanical, technical, and chemical properties of glasses. Other papers treat glass semiconductors and sodo borosilicate glasses. The Conference was attended by more than 300 delegates from Soviet and East German scientific organizations. Among the participants in the discussions were N.V. Solomin, Ye. V. Kuvshinskiy, Yu.A. Gaotier, V.P. Prysmitnikov, Yu. Ya. Gotlib, O.P. Mchedlov-Petrosyan, O.P. Mikhaylov, S.M. Petrov, A.E. Lazarev, D.I. Lerin, A.V. Shatilov, N.P. Plotnichenkiy, A.Ya. Kunetsov, E.V. Degtyarev, G.V. Burtgorovskaya, A.A. Zalesov, M.M. Skornyakov, P.Ya. Bokiy, E.L. Keller, Ya.A. Kunetsman, V.P. Poddar, R.B. Shevelevich, Z.G. Pinsker, and O.S. Molchanova. The final session of the Conference was addressed by Professor I.I. Kitaygorodskiy, Honored Scientist and Engineer, Doctor of Technical Sciences. The following institutes were cited for their contribution to the development of glass science and technology: Gosudarstvennyy opticheskiy institut (State Optical Institute); Institut khimii silikatov AN SSSR (Institute of Silicate Chemistry, AS USSR); Fiziko-tekhnicheskiy institut AN SSSR (Physics Institute AS USSR), Fiziko-tekhnicheskiy institut AN SSSR (Physicotechnical Institute AS USSR), Institut fiziki AN BSSR, Minsk (Institute of Physics, Academy of Sciences, Belorusskaya SSR, Minsk), Laboratoriya fiziki i khimii stekla (Institute of Physics and Chemistry of Glass, Academy of Sciences, Belorusskaya SSR, Minsk), Institut obshchey i neorganicheskoy khimii AN BSSR, Minsk (Institute of General and Inorganic Chemistry, Academy of Sciences, Belorusskaya SSR, Minsk), Institut vysokomolekulyarnykh soyedineniy AN SSSR(Institute of High Molecular Compounds, AS USSR), Gosudarstvennyy institut stekla (State Institute for Glass), Gosudarstvennyy institut elektrotekhnicheskogo stekla (State Institute for Electrical Glass), Sibirskiy fiziko-tekhnicheskiy institut, Tomsk (Siberian Physicotechnical Institute, Tomsk), Leningradskiy gosudarstvennyy universitet (Leningrad State University), Moskovskiy khimiko-tekhnologicheskiy institut (Moscow Institute of Chemical Technology), Leningradskiy tekhnologicheskiy institut im. Lensoveta (Leningrad Technological Institut imeni Lensovet), Belorusskiy politekhnicheskiy institut Minsk (Belorussian Polytechnic Institute, Minsk), Novocherkasskiy politekhnicheskiy institut (Novocherkassk Polytechnic Institute), and Sverdlovskiy politekhnicheskiy institut (Sverdlovsk Polytechnic Institute). The Conference was sponsored by the Institute of Silicate Chemistry AS USSR (Acting Director - A.S. Gotlib), the Vsesoyuznoye khimicheskoye obshchestvo im. D.I. Mendeleyeva (All-Union Chemical Society imeni D.I. Mendeleyev), and the Gosudarstvennyy ordena Lenina opticheskiy institut imeni S.I. Vavilova (State "Order of Lenin" Optical Institute imeni D.I. Vavilov). The 35 resolutions of the Conference include recommendations to organize a Center for the purpose of coordinating the research on glass, to publish a new periodical under the title "Fizika i khimiya stekla" (Physics and Chemistry of Glass), and to join the International Committee on Glass. The Conference thanks A.A. Lebedev, Academician, Professor, and Chairman of the Organization of Committee; Ye.A. Porey-Koshits, Doctor of Physics and Mathematics, Member of the Organizational Committee; and N.L. Nyuller, Doctor of Chemical Science, Member of the Organizational Committee. The editorial board thanks G.M. Bartenev, M.V. Vol'kenshteyn, L.I. Demkina, D.P. Dobychin, S.K. Dubrovo, V.A. Ioffe, and N.N. Kolesnikova. References accompany individual reports.

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YASTREBOVA, L.S., POGODAYEV, A.K., DOBYCHIN, D.P.

Effect of the state of the glass surface on the porous structure of acid etching films on unstable glasses. Koll. zhur. 22 no.2:243-246 Mr-Ap '60. (MIRA 13:8)

1. Gosudarstvennyy opticheskiy institut im. S.I. Vavilova, Leningrad.
(Glass) (Films (Chemistry))

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DOBYCHIN, D.P.; KACHUR, L.A.

Effect of the linear velocity of flow in cracking on the deposition of coke on aluminosilicate catalyst. Zhur.prikl. khim. 33 no.7:1514-1519 Jl '60. (MIRA 13:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov.
(Coke) (Catalysts) (Cracking process)

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DOBYCHIN, D.P.; KLIBANOVA, TS.M.; TODES, O.M.

Calculation of the kinetics of the process taking place in the reactor from the data of modeling experiments with a single pellet. Zhur.prikl.khim. 33 no.7:1519-1526 Jl '60. (MIRA 13:7)
(Catalysts) (Cracking process)

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DOBYCHIN, D.P.; KACHUR, L.A.; TODES, O.M.

Modeling of the thermal regime for the process of regeneration of an aluminosilicate cracking catalyst at rest. Zhur. prikl. khim. 33 no.8:1779-1783 Ag '60. (MIRA 13:9)
(Aluminosilicates) (Cracking process)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

S/076/60/034/04/41/042
B010/B009

AUTHORS: Brezhneva, N. Ye., Dobychin, D. P., Zhabrova, G. M.

TITLE: S. Z. Roginskiy (On the Occasion of His 60th Birthday)

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 4, pp. 939 - 940

TEXT: On March 25, 1960 the excellent scholar Simon Zalmanovich Roginskiy, Corresponding Member of the AS USSR, who has done outstanding research work in the field of catalysis, completed his 60th year of life. Roginskiy graduated from the Dnepropetrovskiy politekhnicheskiy institut (Dnepropetrovsk Polytechnic Institute) in 1922 and took up research work in the field of heterogeneous catalysis in the laboratories of the well-known physicochemists, Academician D. P. Konovalov and L. V. Pisarzhevskiy. In 1926 Roginskiy collaborated with A. I. Shal'nikov at the Fiziko-tekhnicheskiy institut (Physicotechnical Institute) directed by A. F. Ioffe in the preparation of metal sols by condensation. In 1929 he was appointed permanent collaborator of the Institut khimicheskoy fiziki (Institute of Chemical Physics) by Ioffe and N. N. Semenov. In 1932 Roginskiy there became head of the laboratoriya kataliza i topokhimii (Laboratory for Catalysis and Topochemistry), which was incorporated into the Kolloido-

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elektrokhimicheskiy institut (Colloid Electrochemical Institute) (now the Institut fizicheskoy khimii AN SSSR (Institute of Physical Chemistry AS USSR)) in 1941. During his scientific activities S. Z. Roginskiy published more than 300 papers. From 1937 to 1939 Roginskiy, D. P. Dobychin, and T. F. Tselinskaya did research in the field of the theory of supersaturation. Problems of the reaction course on catalyst surfaces, which Roginskiy had studied in collaboration with O.M. Todes, were published in the monograph "Adsorbtsiya i kataliz na neodnorodnykh poverkhnostyakh" ("Adsorption and Catalysis on Heterogeneous Surfaces") (1948). For his work in the field of efficiency and improvement of military material during the Second World War Roginskiy and S. Yu. Yelovich, G. M. Zhabrova, L. Ya. Margolis, and B. M. Kadenatsi received awards of the Narkom Oborony (People's Commissar for Defense) and the Prezidium Akademii nauk SSSR (Presidium of the Academy of Sciences USSR). In 1946 S. Z. Roginskiy began to deal with the catalytic oxidation of gaseous substances. He collaborated with S. Yu. Yelovich, G.M. Zhabrova, and L. Ya. Margolis and came to formulate the "electron chemical concept of catalysis". In 1954 Roginskiy made some observations, with A. A. Balandin, G. K. Boreskov, N. M. Chirkov, and others, on the choice of catalysts. For several years S. Z. Roginskiy systematically investigated catalytic properties of inorganic semiconductors in collaboration with O. V. Krylov, Ye. A. Fokina, and

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S. Z. Roginskiy (On the Occasion of His 60th Birthday) S/076/60/034/04/41/042
B010/B009

V. M. Frolov. In 1935 Roginskiy and N. Ye. Brezhneva had for the first time in the USSR used radioisotopes for the investigation of chemical reactions. He also developed several isotope methods (in collaboration with N. P. Keyer and M. I. Yanovskiy, respectively). In 1956 S. Z. Roginskiy published the book "Teoreticheskiye osnovy izotopnykh metodov izucheniya khimicheskikh reaktsiy" ("Theoretical Fundamentals of the Isotope Methods for the Study of Chemical Reactions"). Together with A. B. Shekhter Roginskiy investigated chemical reactions in the electric discharge. He collaborated with I. I. Tret'yakov in investigating by electron microscopy the surfaces of metals and disperse bodies. Roginskiy also devoted himself to the training of the scientific staff at the Moskovskiy institut khimicheskogo mashinostroyeniya (Moscow Institute for the Construction of Chemical Machinery). He is an editor of "Problemy kinetiki i kataliza" ("Problems of Kinetics and Catalysis") of which 10 volumes have appeared so far. For his achievements he was twice awarded the Stalin Prize as well as the Order of Red Worker's Banner and several medals. There is 1 figure.

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22433

S/080/61/034/007/008/016
D223/D305

15.2670

AUTHORS: Dobychin, D.P., and Pogodayev, A.K.

TITLE: The porous structure of etched films and chemical stability of optical glass

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 7, 1961, 1477 - 1485

TEXT: The present work employing the absorption method studied the porous structure of the layers directly on the polished components. Optical measurements of the thickness of the films enabled their porosity to be determined and application of the method of "molecular thickness gauge" enabled the differentiation of ultra porosity of film structure and pore dimensions. The porosity structure of films on glass of different groups of chemical stabilities was investigated. 15 different kinds of glass were used the most stable group being crown glass K8, containing 74 mol % of silica. The medium group (in respect of chem. stability) was glass BK10, type

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The porous structure of ...

of baruta crown with 62 % of silica. The last group used was crown TK16, containing 52 % silica. The glass samples were cubes with side 15 mm or discs of 22 mm diameter and a thickness of 0.3 mm. The thickness control of films was achieved with a polarization goniometer directly on samples in case of cubes or on special tapers in cases of discs. Table 1 gives data on films structure and calculated ultraporosities. The initial part of isotherm of water adsorption on glass films K8, BK10 and TK16 (un-revived samples) is shown graphically. Fig. 3 shows the adsorption of water on films obtained by etching glass TK12, TF5, LK5, BF10 and TK2. The comparison of adsorption isotherms for water and ethyl alcohol for glass K8 and BK10 shows that the total volume of pores of this layer can be divided into two groups: volume approachable by the alcohol molecules and volume not penetrated by the molecules. The first group is characterized by pure dimensions of 50-80 Å while the second consists of small pores, whose diameters do not exceed 5 Å. It was found that during polishing of chemically stable glass its surface is left cracked while the glass of low stability yield

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The porous structure of ...

gel-forming layer which "smears out" cracks and abrasions. The data shows that the change from high silica content glass to low ones appreciably increases the porosities of etched films. For films of thickness 1000 Å its value is 11-12 % for K8, 13-15 % for BK10 and 35 % for TK16, although the porosity is not directly connected with chemical stability of the glass. All investigated groups have absorption isotherms with a clearly defined hysterisis loop which enabled the use of Kelvin's equation for determining pore dimensions. Ultraporous structures of glass films from K8, BK10 and TK16 could not be analyzed using this equation so a wide relation was employed, i.e. $d = \frac{4v}{s}$ where d - pore diameter, v - volume of pore, s - surface of pore. The analysis of initial parts of isotherms in passing from K8 to BK10 and TK16 shows decrease in their gradients. Since the chemical nature of films in all samples was similar and also the adsorption of one kind of molecule was done at the same temperature, the change in gradients of initial isotherms could be explained by the different energies of molecu-

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The porous structure of ...

les of water adsorbing on pore surface. In the given case the change in interaction energy (adsorption temperature) is connected with change in adsorption potential connected with decrease of pore dimensions. The smaller the pore the higher the adsorption potential and hence the steep rise of adsorption isotherm in its initial stage. The adsorption of polarized molecules of water on silica surface proceeds mainly through the hydrogen bond and orientation of Van der Waal's forces but for small pores, whose dimensions approach those of molecules, the dispersive interaction of molecules with walls of pore could not be ruled out. As shown by B.P.Bering, M.M. Dubimin, Ye.G. Zhukovskaya and V.V. Serpinskiy (Ref. 14: DAN SSSR 131, 865, 1960), adsorption of non-polar molecules on ultraporous sorbents molecular sieves is well covered by the equation of potential theory for sorbents of first structural type:

$$\lg W = \lg W_0 = 0.43 \frac{BT^2}{\beta^2} [\lg \frac{p_s}{p}]^2.$$

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The porous structure of ...

This was used to compare the pore dimensions of investigated films. The authors finally discuss what governs the protective effect of film: porosity or dimensions of pores. It has been suggested that leaching rate of glass with acid solutions depends on the energy of binding cations in the mass of glass but this is rejected by recently published experimental data of Yevstrop'yev, O.V. Mazurin, and V.S. Molchanov (Ref. 15: Zh. vses. khim. obshch; 6, 1, 114, 1961). The investigated glass (K8, BK10 and TK16) gave a specific resistance increase of 10^5 with a fall of chemical stability (Ref. 16: V.A.Khar'yuzov, Optico-mekh. prom. 4, 32, 1959; 7, 31, 1959). The chemical stability of glass which characterized the decomposition of glass for a given thickness could not determine the porosity of the protective film. The glass decomposition is governed by diffusion processes in the protective film at the decomposition rate fixed by the diffusion constant. The value of this coefficient, proportional to the size of pore and linear diffusion in porous medium depends on the value of effective cross-section of equivalent capilliary and not on porosity. The protective action

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The porous structure of ...

of films as well as their rate of formation during acid etching of the glass is determined by the dimensions of pores obtained, but it is independent of the total volume of pores. There are 3 figures, 1 table and 20 references: 16 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: I.R. Beattie, J. Soc. Glas. Techn., 37, 178, 1953, Trans. Faraday Soc., 49, 1959, 1953; R.W.Douglas, I.O. Isared, J. Soc. Glas. Techn., 33, 154, 1949; R.M. Barrer, Brit. Chem. Ind., 5, 267, 1959; H. Adzumi, Bl. Chem. Soc. Japan, 12, 304, 1937.

SUBMITTED: October 17, 1960

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

25224

S/080/61/034/008/006/018
D204/D305

15.2600

AUTHORS: Dobychin, D.P. and Pogodayev, A.K.

TITLE: Determining the diffusion coefficient of water in fine films on glass surfaces

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 8, 1961, 1748-1752

TEXT: This is the second of a series of reports on porous film structures produced by acid pickling of silicate glasses. Thin films produced on polished silicate glass surfaces by acid treatment have a stucture of very fine pores. The adsorption isotherms of water in these films, except with unstable glasses, are free from hysteresis loops. The diameters of the pores are shown by a molecular probe technique to be of the order of 4 - 15 Å. The first approximate solution of non-stationary kinetics of desorption from a porous membrane is given by

$$Q_0 - Q = \frac{8Q_0}{\pi^2} \cdot e^{-\frac{\pi^2 Dt}{l^2}} \qquad (1)$$

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Determining the diffusion...

where Q_o is the initial material content of the membrane, Q - the amount desorbed during time t; Q_o - Q the present desorbing material content in the membrane; ℓ - membrane thickness, D - diffusion coefficient. Films were saturated with water vapor at $p/p_s = 1$ and evacuated at 17°C for varying periods, after which water adsorption was measured. The adsorption isotherms of water vapor in films formed by acid treatment of glasses K8 and TK16, having respective thicknesses of 1000 and 1500 Å, are shown in Fig. 1. In these films, the low diffusion coefficients of water are significant - $1.7 \cdot 10^{-14}$ and $0.55 \cdot 10^{-14}$ cm^2/sec. The values of D for pore radii of 40 and 1000 Å are, respectively, 0.008 and 0.04 cm^2/sec, and are not markedly different from the diffusion coefficient of water vapor in air (0.282 at 18°). This indicates that the dimensions of the pores in the films studied are similar to these of molecular screens. "Ageing" at 120°C of the film of glass TK16 causes reduction of pore size. There are 4 figures, 1 table and 11 references: 7 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: R.M. Barrer, Brit. Chem. Eng. 1959, vol

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Determining the diffusion...

5, 267; W. Jost, Diffusion in Solids, Liquids and Gases (1952); R.M. Barrer and D.W. Brown, Trans. Faraday Soc. 1953, vol. 49, 1049; R.M. Barrer, L.V. Ries, Trans. Faraday Soc., 50, 989 (1954).

SUBMITTED: November 26, 1960

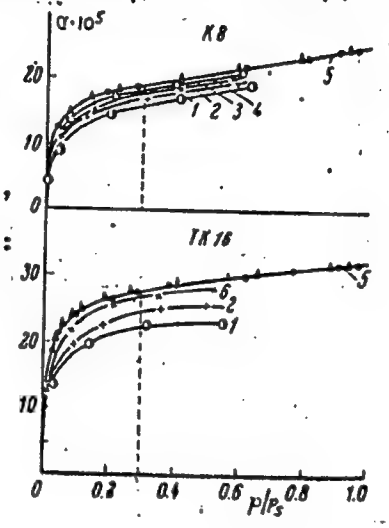

Fig. 1 Legend: Adsorption isotherms of water on films. a - water adsorption $a \cdot 10^5$ (g), p/ps - relative pressure Evacuation time (min): 1-15, 2-30, 3-60, 4-120, 6-150, 5-initial isotherm (complete water desorption). Film on glass: A-K8, B-TK16.

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DOBYCHIN, D. P.

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PHASE I BOOK EXPLOITATION SOV/6246

Soveshchaniye po tseolitam. 1st, Leningrad, 1961.

Sinteticheskiye tseolity; polucheniye, issledovaniye i primeneniye (Synthetic Zeolites: Production, Investigation, and Use). Moscow, Izd-vo AN SSSR, 1962. 286 p. (Series: Its: Doklady) Errata slip inserted. 2500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk. Komisiya po tseolitam.

Resp. Eds.: M. M. Dubinin, Academician and V. V. Serpinskiy, Doctor of Chemical-Sciences; Ed.: Ye. G. Zhukovskaya; Tech. Ed.: S. P. Golub'.

PURPOSE: This book is intended for scientists and engineers engaged in the production of synthetic zeolites (molecular sieves), and for chemists in general.

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Synthetic Zeolites: (Cont.) SOV/6246

COVERAGE: The book is a collection of reports presented at the First Conference on Zeolites, held in Leningrad 16 through 19 March 1961 at the Leningrad Technological Institute imeni Lensovet, and is purportedly the first monograph on this subject. The reports are grouped into 3 subject areas: 1) theoretical problems of adsorption on various types of zeolites and methods for their investigation, 2) the production of zeolites, and 3) application of zeolites. No personalities are mentioned. References follow individual articles.

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Synthetic Zeolites: (Cont.) SOV/6246

Andronikashvili, T. G., and Sh. D. Sabelashvili. Gas Absorption Chromatography on Synthetic Zeolites 65

Zhdanov, S. P., L. S. Yastrebova, Ye. V. Koromal'di. Porous Glasses as Molecular Sieves 68

Dobychin, D. P., T. M. Burkat, N. N. Kiseleva. Porous Glasses as Absorbents of the Molecular Sieve Type 75

Dubinin, M. M. The Composition of Cubic Octahedral Structural Units of Synthetic Zeolites 86

Aleskovskiy, B. V. The Possibility of Obtaining Absorbents of the Molecular Sieve Type of Leaching 91

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32394
S/080/62/035/001/005/013
D258/D304

15.2120
5.1125
AUTHOR: Dobychin, D. P.

TITLE: The possibilities of controlling the structure of porous glasses

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no.1, 1962, 51-55

TEXT: The author describes a method for the control of pore size in glasses, from 3 Å to 200 Å (in uniformly small-pore specimens) and up to 15,000 Å (in the form of layers and diaphragms of large-pore specimens). The control is attained by hardening the glass for various periods below the upper limit of opalescence (~730°C) and especially below the "critical" temperature of 585°C, as found by the author and N. N. Kiseleva (Ref. 6: DAN SSSR, 113, 372 (1957)). It is thus possible to obtain glasses of the molecular sieve type, with sorption properties similar to those of the type and CaX. For example, a glass powder of the type Na-7/23 - 70% SiO_2 - in mole %) was subjected to acid

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leaching, then abruptly heated from 850°C downward, and held at 530°C for a given period. The pore radii of the product were related to the period of heat treatment as follows: 0 min - 8 Å; 20 min - 10 Å; 30 m - 12 to 13 Å; 1 hr - 16 Å; 2 hrs - 17 Å; 8 hrs - 23 to 27 Å; 24 hrs - 30 Å; 72 hrs - 45 Å; 216.5 hrs - 72.5 Å; 313 hrs - 79 Å; and 384 hrs - 85.5 Å. The absorption isotherms of various liquids on this type of glass show a limiting value of ~0.16 ml/g (at p/p_s = 1.0) for water and ethanol. The production of discs or diaphragms of uniform and controlled pore size was achieved only within the limits of 10 - 11 Å (4 hrs at 530°C) and 35 - 45 Å (72 hrs at 530°C). A combination of the above heat treatment with an alkaline treatment used by S. P. Zhdanov (Ref. 10: "Stroyeniye styekla" (The Structure of Glass), 162 (1955)) yielded products with pore sizes ranging from 150 Å to up to 8500 Å. The author determined the porosity (ml/ml), as well as the air and water perme-

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The possibilities of controlling ...

ability constants and related them to the corresponding pore radii r (Å). The data are tabulated. This method is suitable for producing porous glasses to be used either as molecular sieves or as media for adsorption, chromatography, and gas separation. There are 3 tables, 3 figures and 15 references: 14 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: F. A. Schwertz, J. Am. Ceram. Soc. 32, 390 (1949).

SUBMITTED: January 30, 1961

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APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

DOBYCHIN, D.P.; PORSHNEVA, N.V.; TURKEL'TAUB, N.M.

Use of porous glass as sorbent in gas chromatography. Zhur.-prikl.khim. 35 no.6:1246-1253 Je '62. (MIRA 15:7)
(Gas chromatography) (Glass)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

S/076/62/036/001/016/017
B119/B101

AUTHORS: Dement'yeva, M. I., Dobychin, D. P., and Shefter, V. Ye.

TITLE: Use of coarsely porous glass for gas-liquid chromatography

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 1, 1962, 228 - 229

TEXT: The glass to be tested for its suitability as a carrier substance for gas-liquid chromatography was prepared as follows: sodium borosilicate glass of the type ДВ-1 (DV-1) was kept at 650°C for 24 hrs, and at 570°C for 72 hrs, crushed, and the grain fraction between 0.25 and 0.5 mm in diameter was first treated with 3 N HCl at 50 - 55°C for 24 hrs. After rinsing, further treatment was conducted with 0.5 N NaOH at 16°C for 12 hrs. The pores of the glass were 600 - 900 Å large, and the specific surface was 10 - 14 m^2/g. The crushed glass, rinsed and dried at 120°C, was treated with triethyleneglycol-n-butyric acid ester dissolved in ethyl ether. Pentane-isopentane mixtures were separated chromatographically. Parallel experiments were conducted with kieselguhr, diatomite brick from the Inzenskiy zavod (Inza Plant), and with the US preparations Chromosorb and Sterhamol. The separation factor was 1.1 - 1.2 for all carrier

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Use of coarsely porous glass...

substances. In order to characterize the efficiency of the individual carriers, the degree of separation (= ratio of the distance between the peaks to the height of the lowest peak) had to be introduced as an auxiliary quantity. For coarsely porous glass it is 1.0, and for the remaining substances it is 0.1 - 0.7. Coarsely porous glass is therefore suitable for gas-liquid chromatography, owing to the uniformity of pores and to the absence of fine pores. There are 1 table and 2 Soviet references.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov (All-Union Scientific Research Institute of Petrochemical Processes)

SUBMITTED: June 13, 1961

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

ZAKHAR'YEVSKIY, Mstislav Sergeyevich; NIKOL'SKIY, B.P., otv. red.; DOBYCHIN, D.P., kand. khim. nauk, otv. red.; PIASTRO, V.D., red.; ZHUKOVA, Ye.G., tekhn. red.

[Kinetics and catalysis] Kinetika i kataliz. Leningrad, Izd-vo Leningr. univ. 1963. 313 p. (MIRA 16:7)

1. Chlen-korrospondent AN SSSR (for Nikol'skiy).
(Chemical reaction, Rate of) (Catalysis)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

BRESLER, S.Ye.; DOBYCHIN, D.P.; POPOV, A.G.

Use of macroporous glass as a solid carrier in gas-liquid chromatography. Zhur.prikl.khim. 36 no.1:66-74 Ja '63. (MIRA 16:5)

(Gas chromatography) (Glass)

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L 12838-63 EPF(c)/EWT(m)/BDS/ES(w)-2 APGC/SSD Pr-4/Pab-4 RM/WW
ACCESSION NR: AP3003226 S/0020/63/150/006/1293/1295

AUTHOR: Burkat, T. M.; Doby*chin, D. P.; Zhdanov, S. P.

TITLE: Adsorption dehydration of low-molecular fatty acids with porous-glass molecular sieves

SOURCE: AN SSSR. Doklady*, v. 150, no. 6, 1963, 1293-1295

TOPIC TAGS: adsorption dehydration, low-molecular fatty acid, porous-glass molecular sieve, synthetic zeolite, fozhazite, ShSM silica gel, propionic acid, acetic acid

ABSTRACT: The ultraporous glasses developed in the USSR in recent years are suitable for molecular screening, and a wide selection of synthetic zeolite and fozhazite types is available. The present study reports their use for the deep dehydration of low-molecular fatty acids, an application suggested by A. I. Levin. The test mixtures were concentrated solutions of acetic and propionic acids containing 3-5% water by weight, and were analyzed by titration of 0.2 to 0.3-g batches of acid with a 0.05N solution of KOH. The porous glass samples used (described or to be described elsewhere) were made of anomalous

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ACCESSION NR: AP3003226

sodium-borosilicate, low-alkaline sodium-borosilicate, nonalkaline borosilicate, and alkaline silicate glasses, and a sample of finely porous ShSM silica gel (effective pore radius 8-9 angstroms), washed free of iron impurities with concentrated acid, was used for comparison. Before the experiments, the samples were dried at 120C for 2 hours. Preliminary experiments under static conditions at room temperature established the dehydrating possibilities of these materials and led to further studies of a number of them under dynamic conditions. These were conducted at room temperature in columns 300 high and 3.5-4.5 mm in diameter, with a test-sample particle size of 0.1-0.25 mm and a flow rate of circa 1 cm^3 per cm^2 overall column section. The ability of several of these materials to achieve all but complete dehydration of acetic and propionic acid (and hence of larger-molecule fatty acids as well) was demonstrated, but the E-10/30-(I) porous glass molecular sieve (pore size similar to that of CaX zeolite) was not effective, nor was ShSM silica gel. With propionic acid, the best results were obtained with sample no. 1) described in DAN, 138, 870, 1961); with acetic acid, with E-7/23-(I). Also, desiccation with porous glass molecular sieves was, in general, more effective with propionic than with acetic acid. Only about 40% of the available adsorbent area was utilized. These findings show the feasibility of

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ACCESSION NR: AP3003226

dehydrating low-molecular fatty acids which cannot be dehydrated by other types of adsorbent, such as ordinary zeolite molecular sieves. This report was presented by Academician M. M. Dubinin, 18 Nov 62. Orig. art. has: 1 figure.

ASSOCIATION: Vsesoyuzny*y nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov (All-Union Scientific Research Institute of Petrochemical Processes)

SUBMITTED: 13Dec62 DATE ACQ: 24Jul63 ENCL: 00

SUB CODE: CH, PH NO REF SOV: 007 OTHER: 002

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APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

DOBYCHIN, D. P.

"On the effect of aluminum oxide on the structure of sodium-borosilicate glasses and porous glasses made thereof."

report submitted for 4th All-Union Conf on Structure of Glass, Leningrad, 16-21 Mar 64.

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ABRAMOVA, N.A., nauchn. sotr.; BEL'CHENKO, G.V., kand. tekhn. nauk; BERENBLIT, V.V., nauchn.sotr.; VASIL'YEV, V.P., kand.khim. nauk; DOBYCHIN, D.P., doktor khim. nauk; IOFFE, B.V., dokt. khim.nauk; KAMINSKIY, Yu.L., nauchn.sotr.; KARPOVA, I.F., kand. khim. nauk; KOPYLEV, B.A., doktor khim. nauk; LUTUGINA, N.V., kand. khim. nauk; MATEROVA, Ye.A., kand. khim. nauk; MORACHEVSKIY, Al.G., kand. khim. nauk; MORACHEVSKIY, An.G., kand. khim. nauk; NIKEROV, A.E., kand. khim. nauk; PAL'M, V.A., kand. khim. nauk; RABINOVICH, V.A., kand. khim. nauk; SOKOLOV, P.N., kand. khim. nauk; FRIDRIKHSBERG, D.A., kand. khim. nauk; TSYGIR, Ye.N., nauchn. sotr.; SHAGITSULTANOVA, G.A., kand. khim. nauk; SHKODIN, A.M., doktor khim. nauk; YATSIMIRSKIY, K.B.; GRIGOROV, O.N., doktor khim. nauk, red.; ZASLAVSKIY, A.I., kand. khim. nauk, red.; MORACHEVSKIY, Yu.V., prof., red.; RACHINSKIY, F.Yu., kand. khim. nauk, red.; POZIN, M.Ye., doktor tekhn. nauk, red.; PORAY-KOSHITS, B.A., doktor khim. nauk, red.; PROTASOV, A.M., kand. fiz.-mat. nauk, red.; ROMANKOV, P.G., red.

[Handbook for the chemist] Spravochnik khimika, 2. izd., perer. i dop. Moskva, Khimiia. Vol.3. 1964. 1004 p. (MIRA 18:1)

1. Chlen-korrespondent AN SSSR (for Romankov). 2. Deystvitel'nyy chlen AN Ukr.SSR (for Yatsimirskiy).

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

BURKAT, T.M.; DOBYCHIN, D.P.

Advanced-stage dehydration of low-molecular fatty acids by means of porous glasses (molecular sieves). Zhur. prikl.khim. 38 no.9:1994-2002 S '65. (MIRA 18:11)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

L 11868-66 EWT(m)/EWP(e)/EWP(b) GS/WH

ACC NR: AT6000479 SOURCE CODE: UR/0000/65/000/000/0126/0130

AUTHOR: Dobychin, D. P.

ORG: None

TITLE: Effect of aluminum oxide on the structure of sodium borosilicate glasses and porous glasses obtained from them

SOURCE: Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu. 4th, Leningrad, 1964. Stekloobraznoye sostoyaniye (Vitreous state); trudy soveshchaniya. Leningrad, Izd-vo Nauka, 1965, 126-130

TOPIC TAGS: borate glass, silicate glass, porosity, aluminum oxide

ABSTRACT: The diffusional growth of coarse particles at the expense of the dissolution (evaporation) of fine ones, a process called recondensation, was studied in Na-10/30 glass (10 mole % Na_2O and 30 mole % B_2O_3) in relation to the effect of aluminum oxide. Adsorption isotherms of water on porous glasses obtained by leaching heat-treated samples with HCl were used to investigate the porous structure. As the Al_2O_3 content increases in the original sample, the pore size also increases. The effect of Al_2O_3 on the pore size is a complex one. Al_2O_3 has a substantial effect on the rate of recondensation growth of regions of

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L 11868-66

ACC NR: AT6000479

chemical inhomogeneity. It is postulated that in the presence of Al_2O_3, the boundary of the boron-sodium regions becomes coated with a layer of strong chemical formations which hinder the diffusional exchange between the boron-sodium regions and the surrounding system, and hence, prevent their recondensation growth. The relationship between the pore size in the leached porous glass and the regions of chemical inhomogeneities in the initial glass is discussed. Orig. art. has: 4 figures, 2 tables, and 5 formulas.

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

DOBYCHIN, I.F.

Technical and economic evaluation of machines of new design.
Avt.trakt.prom. no.9:6-8 S '54. (MLRA 7:10)

1. Ministerstvo avtomobil'nogo, traktornogo i sel'skokhozyaystvennogo mashinostroyeniya.
(Automobile industry) (Machinery in industry)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

DOBYCHIN, I.F.

Determining the production volume for the automobile industry. Avt. trakt.prom. no.9:5-6 S '55. (MLRA 8:12)

1. Ministerstvo avtomobil'noy promyshlennosti
(Automobile industry)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

DOBYCHIN, K.

DOBYCHIN, K.

Incorrect planning of investments in the ceramic industry. Stroi. mat. 3 no.4:38 Ap '57. (MLRA 10:6)
(Ceramic industries--Finance)

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

DOBRICHIN, N.

Coccidiosis of fowl (chickens). Chkalov. Chkalov Publishing House. 1952. 7 pages. (Chkalov Oblast Administration of Agriculture, Administration of Agricultural Propaganda, Veterinary Department). 2,500 copies. Free.

SO; Veterinariya; 30; (1); January 1953; unc;. TABOON - New Books

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

DOBYCHIN, N., and MIRZOYAN, V.

Diseases of agricultural fowl, their prevention and treatment. Chkalov. Chkalov Publishing House, 1952. 48 page with illustrations. Price 80 kopeks. 3,000 copies.

SO: Veterinariya; 30; (3); March 1953; Uncl. TA-CON - New Books

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1"

"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

DOBYCHIN, N.

The equipment works without idle time. Na stroi Ros. 3 no.9:4-6 S '62. (MIRA 15:12)

1. Glavnyy inzhener zavoda zhelezobetonnykh izdeliy No.5 Glavnogo upravleniya promyshlennosti stroitel'nykh materialov pri ispolnitel'nom komitete Moskovskogo gorodskogo soveta deputatov trudyashchikhsya.
(Construction equipment)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

DOBYCHIN, N. P., and KANEVSKIY, V. N.

Kozhnyy ovod i bor'ba s nim (Cutaneous Botfly and its Control), Chkalov, Chkal. izd. 1951. 6 pages (Chkal. obl. Administration of Agriculture. Administration of Agriultural Propaganda. Veterinary Division). Unbound. 1,500 copies.

SO: Report U-4502; 28 Aug 1953

(From: NEW BOOKS ON VETERINARY MEDICINE, Veterinariya, No 11, pp 63, 64, Nov 1951, Moscow, Russian mo per.)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

DOBYCHIN, P. V.

35161. Normal'nyy Fotogeliograf. Byulleten' Komissii Po Issledovaniyu Solntsa (Akad. Nauk SSSR), No. 2, 1949, s. 1-4

SO: Letopis' Zhurnal'nykh Statey, Vol. 48, Moskva, 1949

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

SVESHNIKOV, G.V.; DOBYCHIN, S.L.

Galvanic sulfide dissolution as a formation cause of the hydrogeochemical halo of heavy metal dissemination [with English summary in insert]. Geokhimiia no.4:70-75 '56.
(MLRA 9:11)

1. Leningradskiy gosudarstvennyy universitet, Leningradskiy tekhnologicheskiy institut.
(Sulfides) (Altai Mountains--Geochemistry)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

ALESKOVSKIY, V.B.; DOBYCHIN, S.L.; KEDRINSKIY, I.A.; MILLER, A.D.; MIKHEYEVA, A.I.; MOKHOV, A.A.; NAZAROVA, Z.N.

Determination of trace elements in natural waters after a preliminary concentration by the method of "sinking particles." Trudy LTI no.48:12-21 '58. (MIRA 15:4)
(Trace elements) (Water, Underground)

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000410710016-1

DOBYCHIN, S.L.; ALESKOVSKIY, V.B.

Study of ion exchange under conditions of the free fall of ion exchanger particles in solution. Trudy LTI no.48:22-23 '58. (MIRA 15:4)

(Ion exchange)

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